BIG K

THE HIGHLY COMICAL APPLE MacINTOSH... 85p

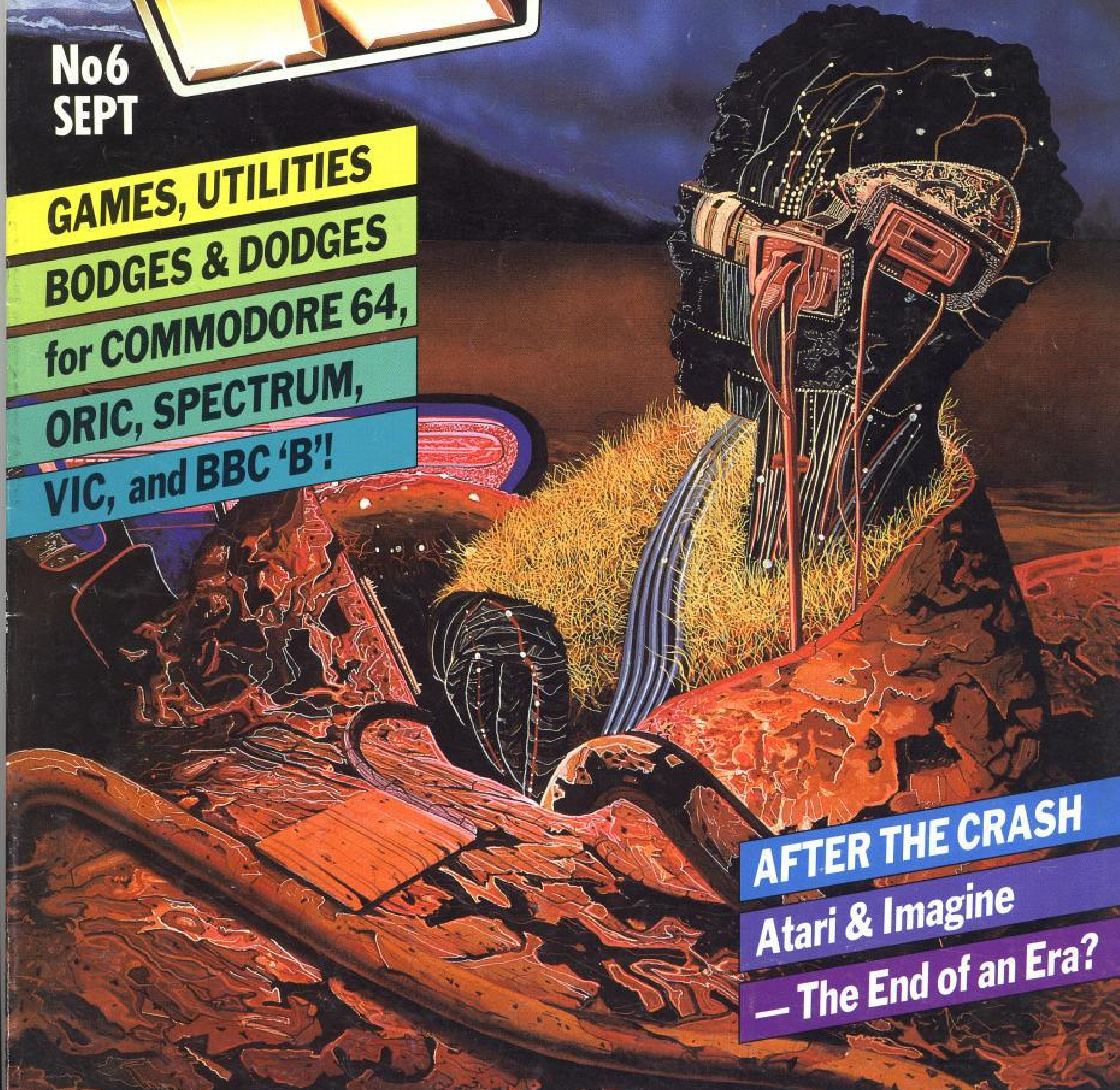
No6 SEPT

STICKS MAY BREAK...
Controller Review p.34

SABRE WULF MAP!
All 256 locations laid bare

Plus Amstrad Review/
Letterbase/Dorkslayer
Arcade Punch-out

GAMES, UTILITIES
BODGES & DODGES
for COMMODORE 64,
ORIC, SPECTRUM,
VIC, and BBC 'B'!



AFTER THE CRASH
Atari & Imagine
— The End of an Era?


KOKOTONI WILF
'Kokotoni Wilf is an arcade adventure whose undisguised intention is to steal the title of "best arcade adventure program bar none" from Jet Set Willy'.
As Kokotoni Wilf you must recover all the pieces of the legendary Dragon Amulet (which has been scattered throughout time) for your master the great magician, Ulrich.
Throughout the quest Wilf comes up against many dangers from huge lumbering prehistoric dinosaurs, to hostile alien robots, but the reward for recovering all the pieces warrants the risk.
The 48K program features a number of major advances over Jet Set Willy. The games designer, Elite, stresses that each of the games 60 plus screen settings is genuinely high resolution, as opposed to psuedo hi-res, and doesn't require a title to explain what you're looking at. Furthermore, the sprite characters are of cartoon quality and exhibit their own personalities.
Impressive claims. Jet Set Willy fans will no doubt feel both sceptical and intrigued ......
Watch this space!
48K Spectrum and Commodore 64 available Sat. 15th September.
elite

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THE END IS NOT NIGH

You may have noticed that we're a bit late this month. Our apologies. The reason was a reappearance of that perennial Bug in The Great British Operating System — an Industrial Dispute. This caused a wholesale crash within the IPC mega-network, and affected hundreds of magazines, not just BIG K. However, by dint of late nights and unbelievable amounts of tepid coffee we got it together — our largest issue yet.

If you find a bug or two . . . don't call us. We already know about it.

We've also cleaned up (by popular demand) our Reviews Ratings system (see page 18-30). We hope you'll approve.

This month's Cover Story concerns the long-predicted disaster that's overtaken two archetypal computer/games companies — one American, one British (see page 43). In America some pessimists are saying It's All Over. We don't think so — though it is clear that we're going through the end of the First (or is it Second?) Age of Personal Computing. On reflection, it was probably necessary to shake out some of the old assumptions, so that the survivors can clean up their acts.

A great example of what lies just around the corner can be found on page 90. In our view, this — and not just more games — holds a clue or two to the computer future. May it arrive sooner rather than later — and, one hopes, without any more tragedies and disasters.

TONY TYLER

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BIG K in the land of J.R. and computer comics. p.88.







From hang gliding to meteor bashing. BIG K games listing. p.52 & 42.

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Auntie/Acorn Love Affair Smoulders On

THE BBC has renewed its contract with Acorn Computers. This puts an end to speculation that Auntie Beeb might make a new partner of Uncle Clive, or even (long shot) Cousin Commodore. The BBC micro, as we know it, stays for another four years.

The Corporation also has plans for a new TV computer series, as well as new books and software. Although Commodore have been selling hardware like hotcakes in schools, of late, they've still a long way to go to catch up with the mighty Beeb, which claimed three-quarters of the total computers bought by schools last year.

Nice to have friends in high places.

Subtitles are on page 94 of your Spectrum

TURNED ON by Teletext? No? Pity. Because if you were — and if you also happened to be a Spectrum owner — joy could be yours mucho pronto since OEL have now produced a Teletext adaptor for the Little Black Box From Cambridge. Priced at a cool £145, the TTX 2000 plus all vital bits is available from OEL Ltd., North Point, Gilwilly Estate, Penrith, Cumbria. CA11 9BN.

Credibility Note: OEL are also the designers of the award-winning Prism VTX 5000 modem.

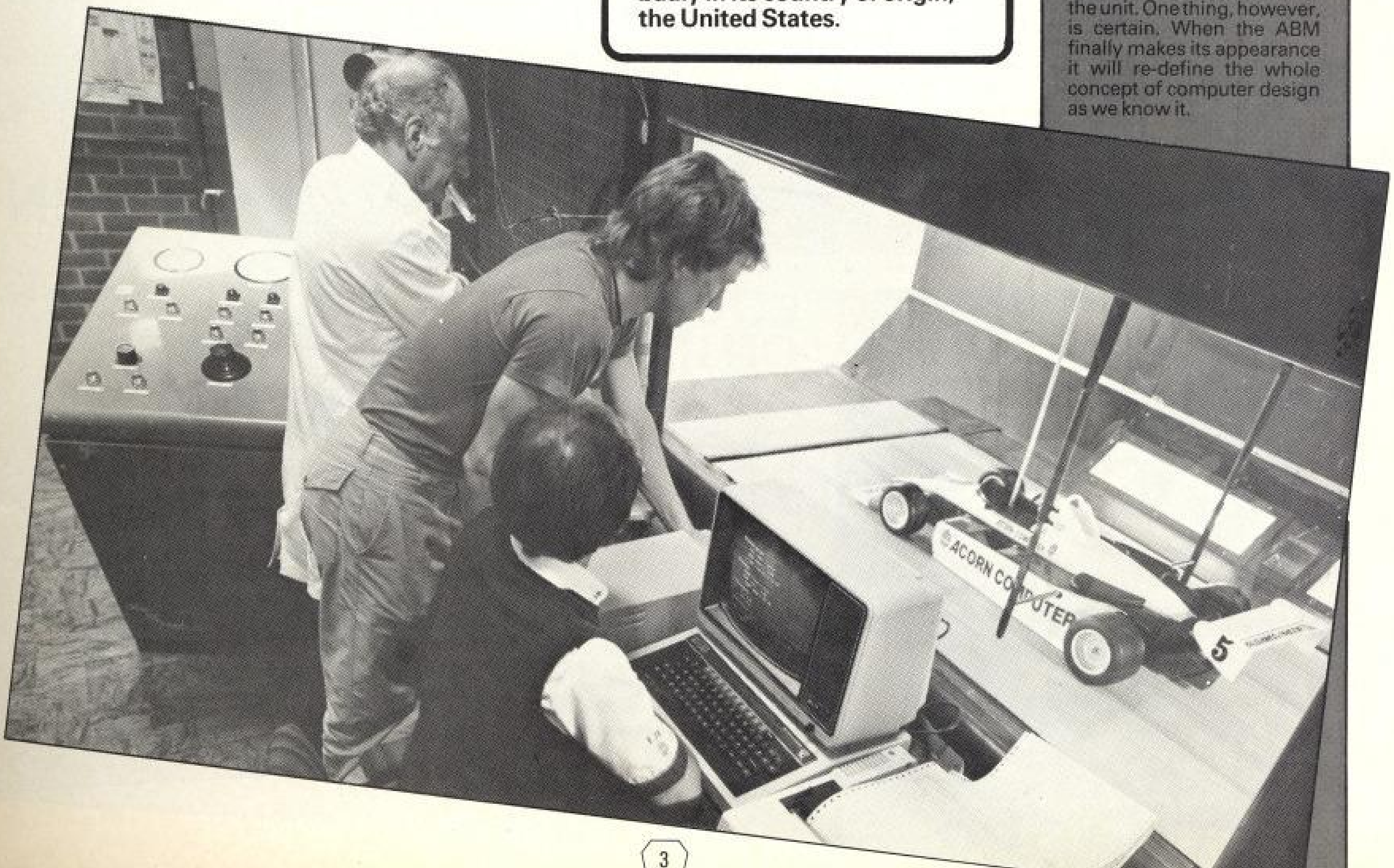
BUG-BYTE SIGN ROBOT HAM

VETERAN SCOUSE software house Bug-Byte have successfully negotiated a deal to produce computer games based on TV's 'Automan' series. Currently being storyboarded, the first game in the series will be in the shops (Spectrum 48, CBM 64) early next month.

NB: Although a successful show in the UK, 'Automan' has reportedly bombed out badly in its country of origin, the United States.

Acorn ABM – First Sighting

WITH RUMOURS of the long-waited Acorn business micro growing stronger each day, BIG K believes it has uncovered photographic proof of the existence of the new wonder machine. The picture shows the ABM undergoing final evaluation at a top secret Acorn 'safe house' somewhere in England. Industry observers will be quick to note the revolutionary look of the ABM with its slick, executive styling which will undoubtedly ease transportation of the unit from one location to another. The most exciting features are the four massive disc drives, one on each corner of the unit. Obviously compatible with no other system currently on the market, the capacity of these drives can only be guessed at. Speculation surrounds the ABM's rearward configurationwhich some have said must be a massive heat sink, or more ominously, a possible dreaded Sinclair-type dongle which may be done away with at a later date. The ABM operator has a custom-designed work area built into the centre of the unit, between the side ROM and RAM packs. Unconfirmed reports indicate that limited protective clothing may be required to extract the full potential of the unit. One thing, however, is certain. When the ABM finally makes its appearance it will re-define the whole concept of computer design as we know it.



GRANADA'S MICRO MOVE

WHEN NEXT renting a TV or video from Granada check out their range of home computers. Yup, the high street rental giant is moving micros into over 100 of their 450 stores as part of an "... Important and significant step in the company's development strategy."

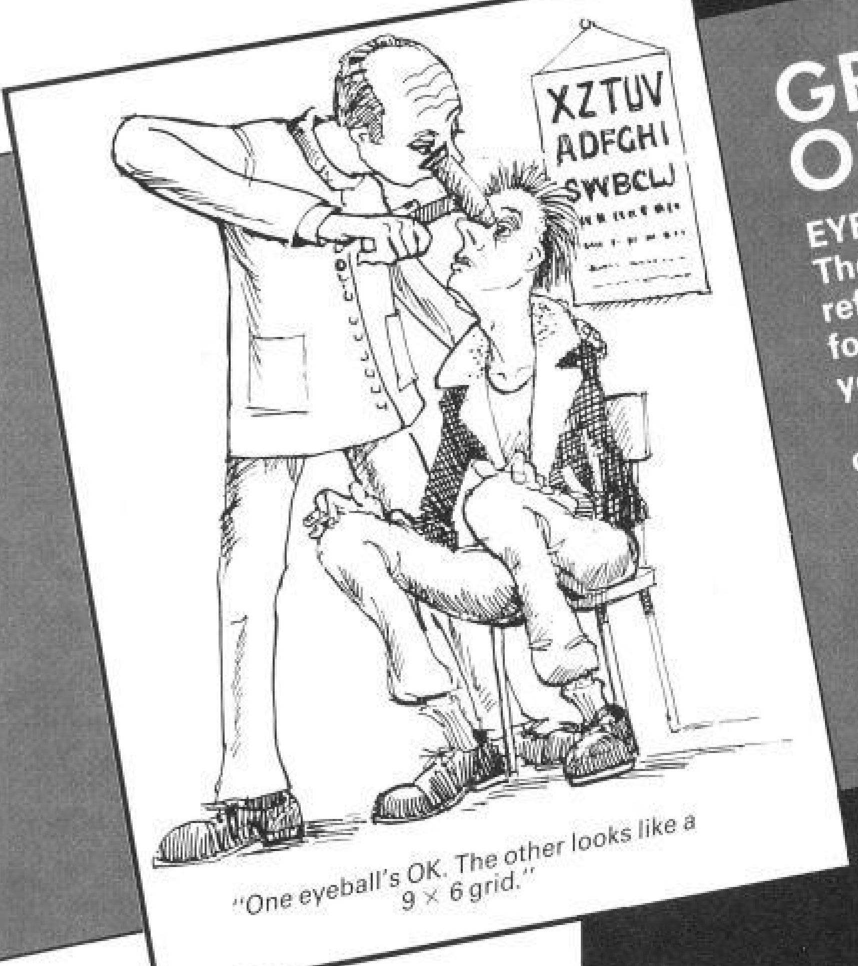
Initially the micros (Spectrum, BBC, Electron, Commodore 64 and Vic 20) will be offered for sale only, although a company spokesman didn't rule out the possibility of a rental scheme, "... If the situation arises." That sort of move could lead to a massive boom in home computer usage in Britain, already a market valued at around £400m in 1984.

Granada is backing up the micros with a wide range of software (games and educational) and peripherals with more being introduced all the time.

ENTERPRISE BOOST

THE LONG-awaited Enterprise micro, now due for release next month, has had its market chances greatly enhanced by the news that the mighty Prism company are to distribute the machine in the UK.

Prism currently distribute 20% of all small computers sold in the UK.



"One eyeball's OK. The other looks like a 9 × 6 grid."

GREAT VIDEO DISEASES OF OUR TIME – No 71

EYES CROSSED? Headache? Feeling generally lousy? Then start worrying — you're suffering from 'specular reflection' — in other words, eyestrain from continually focusing and re-focusing on, er, out-of-focus images on your screen. And it can cause permanent eye damage.

Luckily for civilisation as we know it, a Tyne & Wear company called Romag have come up with an eye-saving widget called CEAF, which is a laminated screen filter specially made to nullify all those harmful effects. CEAF is £20 — considerably less than American-made screens which have been selling (or not, as the case may be) for five times that figure. So if your right eye is looking straight at your left ear (and vice versa), contact them at Patterson St., Blaydon on Tyne, NE21 5SG, pronto.

Don't cry for K-Tel, it won't be seen on software any more. But look out for *Frontrunner*, the new name for all K-Tel games. The first two titles under the new banner will be *Storm Warrior*, a 12-screen arcade-adventure, and *Space Professor*, an educational game, both for the CBM 64.

The Count. Ov possibly some other dork.



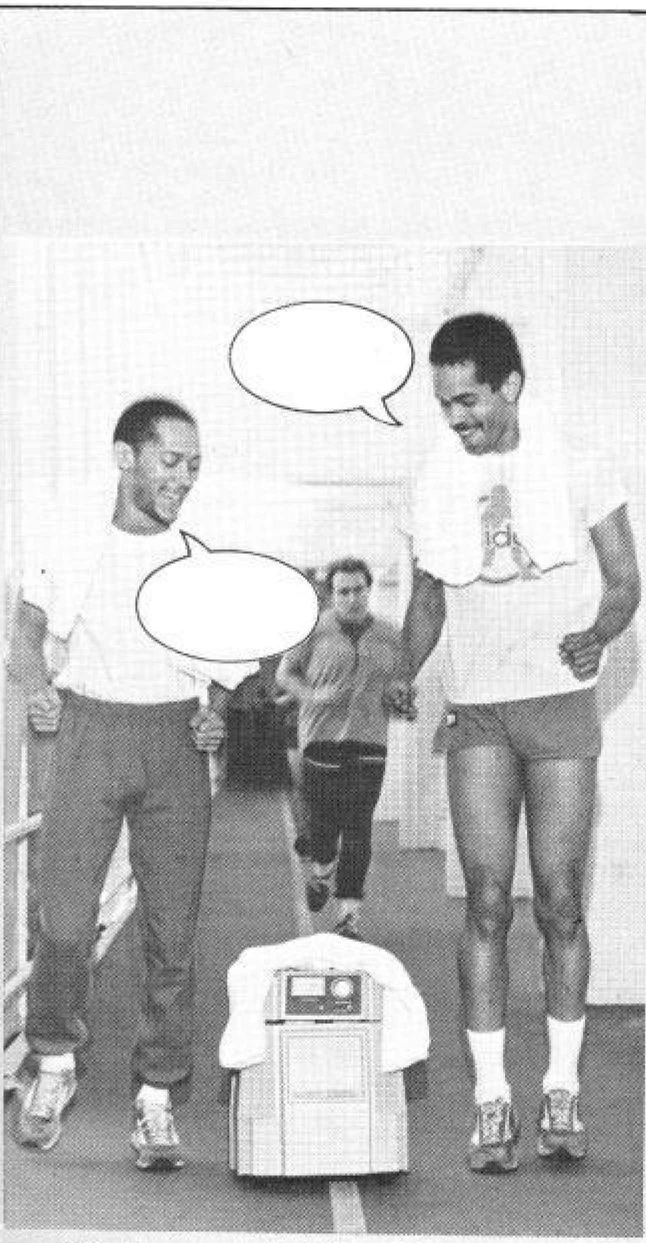
COUNT ON IT!

FED UP with continually being dumped back at the Starting Gate every time you lose a life in a computer game? Then relief is on the way, in the form of *Hercules*, a new 50-screen epic from a new programmer, a dude who handles himself The Count of Mantissa. On losing a life in *Hercules*, a random access routine is invoked whereby you are plunged into any one of the 50 sheets in the game.

This satisfying new lick comes to you courtesy of a new company Interdisc, financed by Island Records whose avowed aim it is to go for quality not quantity. Nice to hear of new companies still starting up.

GARBAGE IN...

DATELINE LIVERPOOL, and stirring scenes as mobs of enraged creditors fight in the street outside *Guess Who*'s former offices, colliding with each other and with bailiffs removing the flash furniture. Seems there's no decent wine left in city centre stores, since *Guess Who* had imbibed most of the choicer vintages in the last six months, leaving said stores with *Nicolas Rough Red* as the top end of their wares ... Also despondent: Wirral niterie *Atmospheres* (who wanted *Guess Who* to buy them out six months ago),



Fill in the speech bubbles with appropriately pungent (not to mention plangent) comments and send it to BIG K (Robot), 1038, IPC Magazines, Kings Reach, Stamford Street, London WC2 9LS . . . the winner will receive a super-fantastic prize from the BIG K MYSTERY SOFTWARE HOARD, so be sure to include details of any computer(s) you own . . .

Join 1000 other players in *Starnet*, the new participation Galactic strategy game currently running on Micronet. Over 340 maps and 3000 stars, each with its own special function, give players a lot of room to move. Game object is to become Emperor and hold on to the title. A prize worth £150 goes to the despot who captures the Throne.

ULTIMATE PLAY THE BEEB!

THE BEEB is the latest machine to benefit from Ultimate's original and top-selling game, **Jet Pac**. The BBC version will be available for the princely sum of £7.95. As in its Spectrum and Vic 20 incarnations the game features 16 waves of aliens and four different spaceships to assemble, each comprising three sections. As yet **Jet Pac** is the only one of Ultimate's range of Spectrum games to be converted to other machines. According to the company, although **Atic Atac** has sold better than **Jet Pac** it is **Jet Pac** which seems to be played and enjoyed more.



... GARBAGE OUT

by the Shadow

sadly missing the £1,000 *Guess Who* were wont to blow in a single merry evening . . . And on a final note, by eerie coincidence it seems that *Atari* were on the point of bailing *Guess Who* out — until the arrival of *Jack Schlemiel*, who nixed the takeover. Result: *Atari* went under and so did *Guess Who* . . . yes, it's an interlinked old world sure enough . . .

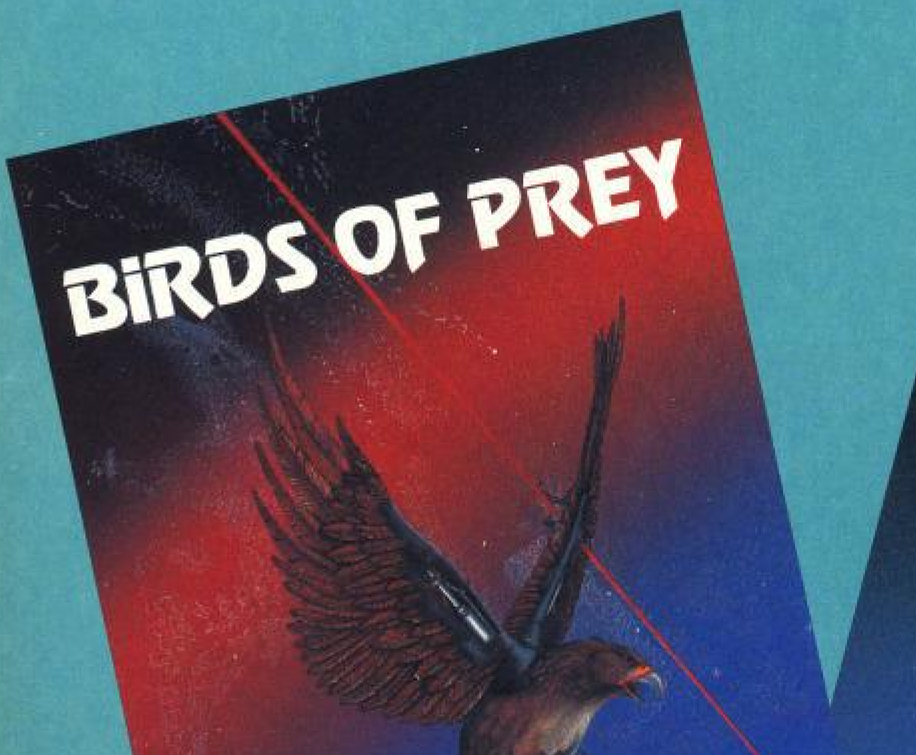
And now for something completely . . . similar. After the universe-shattering success of *War of the Worlds* by *Jeff Wayne* ("Who he?" asks reader *H.G.W.* of Tooting), famed East End software house *CRL* have now acquired the rights to *The Magic Roundabout*; rumours to the effect that *Richard Taylor* will star as *Dougal* and *Clem Chambers* as *Zebedee* remain uncomfirmed . . .

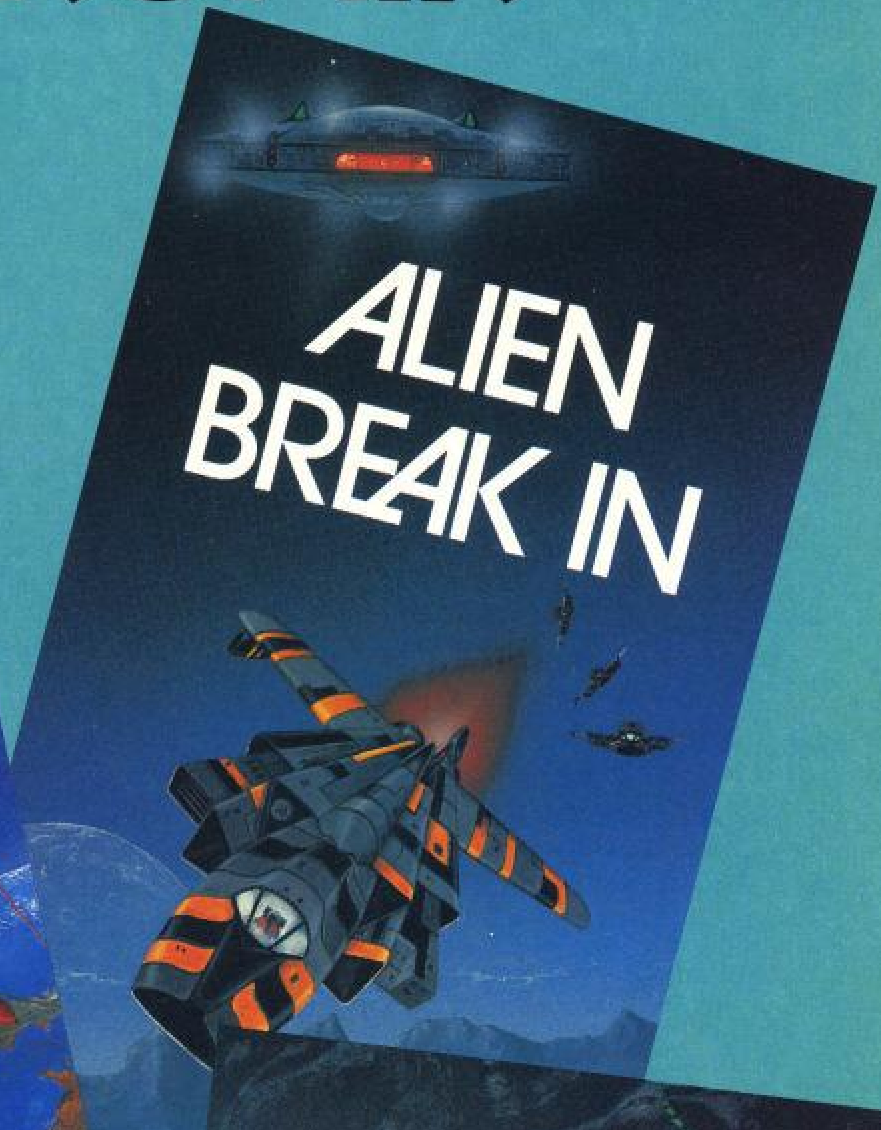
Waves of reaction: in *The Times* (you've heard of that) letters now appearing claiming that computers in schools are a menace: depersonalising, dehumanising and removing the vital "interpersonal relationship". Also from the popular press: mounting flak about the American game *Mission to Moscow*. "It encourages war", say writers to *The Standard* and other popular evening broadsheets. Sure it does; just as maze games enforce visits to Hampton Court, Kong games are anti-anthropoid, PacMan games encourage "kids" to raid medicine cabinets in search of power pills, and adventures pressure users thereof to don antique armour and leap about with swords beheading dumbo correspondents to silly national newspapers . . . You really must forgive *The Shadow*: he's had a bad month . . .

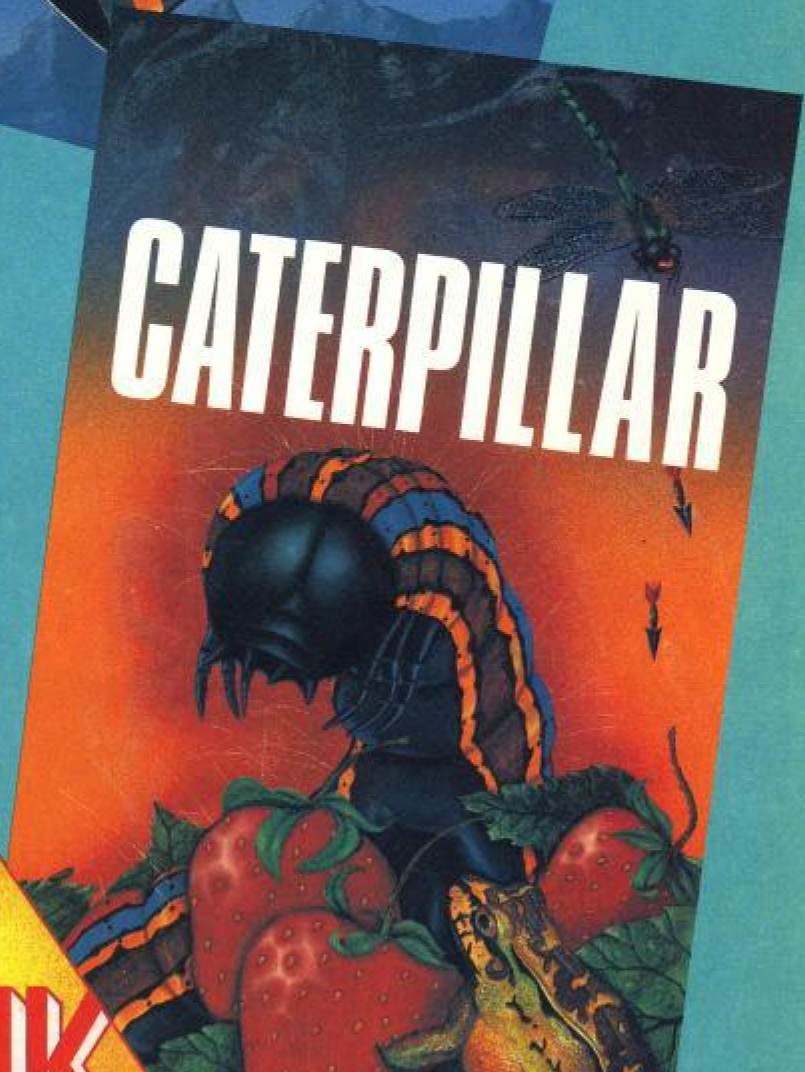
SORD OF HONOUR

THE INTERESTING but largely overlooked CGL (Sord) M5 computer gets a boost this month with the release of eight new games for the machine. They are: **Bomber Run; Devil Bird; Intrique; Slots; Stranded; Wheels,** and two Triple Packs: **Simon, Granny** and **Spiders**; and **Squash, Lander** and **Raiders.** All the single games are priced at £5.95, while the triple packs sell at £12.95 apiece.

Three more challenges from ROMIK







More great games for the BBC and Acorn Electron.

All keyboard or joystick compatible.

Just three from a range of over 70 games for 11 computers.

Available from selected branches of: Boots, Dixons, John Menzies, W.H. Smith, and all good computer stores.

ROMIK

Romik Limited, 272 Argyll Avenue, Slough SL1 4HE

U.K. UNDER ATTACK

"OVER-RATED, OVER-PRICED AND OVER HERE"?

UNIQUE TWIN-PRONG ATTACK THREATENS BRIT. MICRO INDUSTRY

AMERICAN-ORIGINATED software is headed for British shores in ever-increasing numbers. U.K. companies are springing up specifically to bring over top-selling American games and, in some cases, convert them to British micros.

Probably the most well-known of these companies to date is U.S. Gold, who scored a No. 1 chart hit recently with *Beach Head* for the CBM 64. In existence only since April, U.S. Gold told BIG K that they had deals signed with many of the major Stateside software houses and planned to release 27 titles before Christmas. These include Datasoft's *The Dallas Quest* and Synapse's *Zaxxon* — the 'official' CBM 64 version. Prices tend to be on the heavy side (not unknown where U.S. software is concerned — the Americans are used to paying around £30 for a game) at £14.95 per cassette. U.S. Gold believe that people won't mind paying such high prices for quality games.

Newcomer Statesoft was, naturally, born on the 4th of July this year and enjoys the backing of the large Spectrum (no relation) group of retail outlets. It has the rights to handle First Star releases for the good ol' 64 and the first two, *Astro Chase* and *Flip 'n' Flop*, should be out by now. A second pair, *Boulder Dash* and *Bristles*, are due out next month. Pricing wasn't confirmed when we talked to Statesoft but £8.95 for cassettes and £11.00 for discs were given as ballpark figures. Statesoft have the rights for translating all First Star titles to the ZX Spectrum but will probably be licensing these to another software house.

Cheetahsoft, with two Spectrum titles already out, has announced that it has aquired the rights to market Imagic games in Britain. *Moonsweeper* and *Dragonfire* will form the first wave of Imagic/Cheetahsoft releases for the Spectrum, in cassette form at £7.95 each. Other machines may be targeted at a later date.

Meanwhile, from the Land of the Rising Sun the mighty MSX machines surge like a tidal wave of Datsuns toward our tiny isle. Among them familiar names like Sony, Hitachi, Sanyo, Toshiba, National, Yamaha and others. All have one thing in common — MSX, the Microsoft-backed language that does away with incompatibility between microcomputers.

The roster of those who are planning MSX games looks like a who's who of the U.K. software industry: Quicksilva, Virgin Games, Artic, PSS, Bug-Byte, Silversoft, CDS, Ocean, Psion, Mastertronic, Mr Micro, Llamasoft, Salamnder, Audiogenic and Kuma. Over 40 companies in all are interested so far.

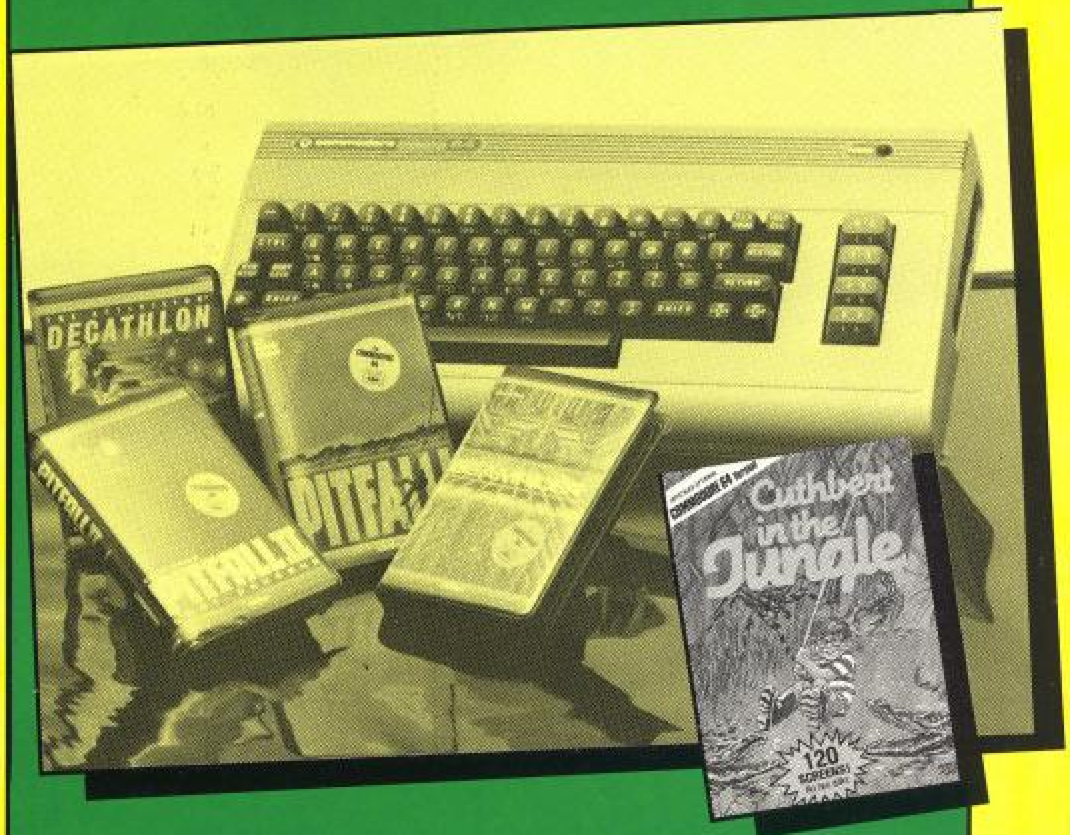
Despite scepticism in some parts about the impact MSX will have on the U.K. scene the Japanese companies have a lot of money (around £50m) and a lot of patience to get their product established. "We're not looking so much at Christmas 1984," one spokesman told BIG K, "but at Christmas 1985 and 1986."

MOGUL SOFTWARE

is claiming a unique "first" — in blagging the home computer rights to a major new US arcade game . . . before the latter has even hit the arcades!

The game? *Zeta 7*, a rotating shoot-'em-up in the grand tradition, written by US programmer Mike Wacker. By the time you read this Mogul's version for CBM 64 (cassette, with disc to follow) should be in the shops for a mere £7.95.



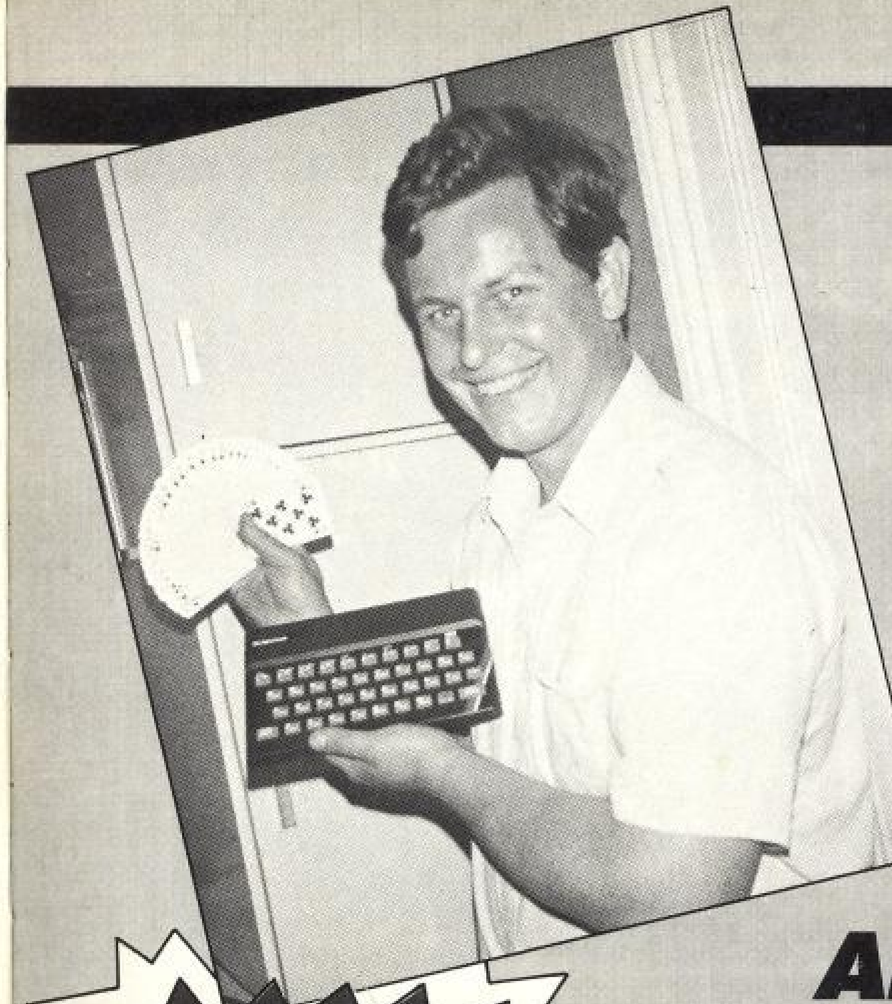


64 MARCHES ON

ACTIVISION, THE giant American indie software house, have now added the world's best-selling microcomputer — the Commodore 64 — to their list of target machines.

First games on CBM cassettes are:* Beamrider; Decathlon; River Raid; Pitfall; Pitfall II; H.E.R.O.; Zenji, *and* Toy Bizarre. *All but the last two are conversions

The American company has also successfully sued Cornish outfit Microdeal, claiming that the latter's* Cuthbert In The Jungle *is a rip-off of* Pitfall. *Microdeal have given a High Court undertaking to shelve the Cuthbert game permanently.



AND NOW, FOR MY NEXT PROG . . .

DAVID HAMBLY, member of the Magic Circle and micro-brat, has fused the two strings on his bow together to become nuncio to what may well prove to be a dread new breed — Computer Magician.

On-screen graphics display three playing cards, face down. The computer 'tells' one to Find the Lady (The Queen). *Cherchez la Femme* — geddit? The old three-card trick.

One points a trembling digit at an appropriate key. Wrong! Every time! Hambly reverses the trick. This time one shuffles three real cards and lays them down to match — but not be visible to — the screen "cards". One instructs the patient micro to Find The Lady, dammit. One of the screen cards turns to show the Queen. One flips the corresponding real card and . . . the bitch is there! Every, but every, time.

David Hambly's speciality is 'close-up' magic. That means that you can scrutinise his hands with a magnifying glass and still not suss how he makes you look a mug. **(We'll tell you one day, Nicky — Ed.)**

Hambly confides that micros suit his no-nonsense style of magic. Producing rabbits became frankly, old hat, **(watch it — Ed.)** and escapology just tied him down **(you're fired — Ed.)**

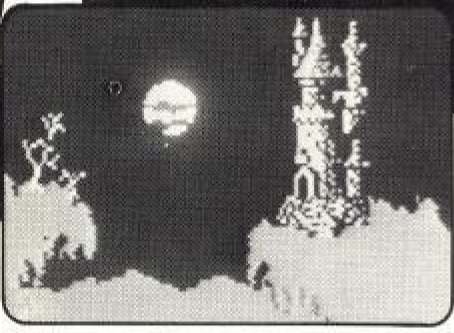
If you're (un)lucky you might come across the man and his micro performing near you one day. Run! No, check it out. David Hambly also likes to behead select audience members on stage. Well, who doesn't these days? ("It's great fun, you can play football afterwards!"). Failing that; if you own a ZX 81, you too can shrivel your friends into a humiliated pulp! David's simple booklet will teach you how to turn a micro-heist or two with cards and ESP. You'll need to spend some time practising, as — and here's the rub — ALL IS NOT AS IT SEEMS!

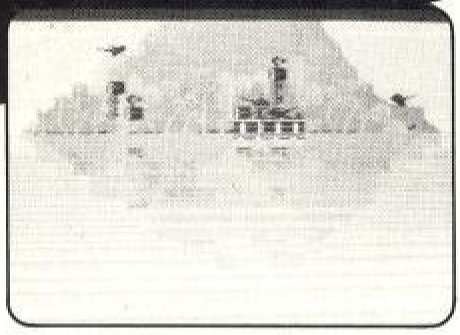
Meanwhile — I know something you don't know. Yes, how it's done. And I can be bought.

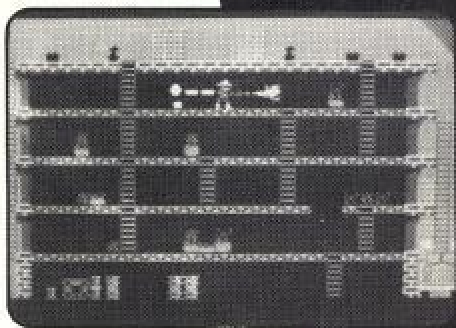
NICKY XIKLUNA

COMPUTER MAGIC with the ZX 81 costs £2.00, and is available directly from:

DAVID HAMBLY
25 Knight's Way,
Hainhault, Ilford,
Essex 1G6 2RS.







Lousy French joke
"Knock, knock!"
— "'Oo's there?"
— "Hugo."
— "Hugo *qui?*"
—Hugo buy an Oric . . . *Moi*, I'll save up for one of zose IBMs."



FROGGY WENT A PROGGING

WHEN MATTEL went down recently, they left behind a team of 13 international software professionals, all booted up, as it were, but with nothing to run. This team of folks from France, Britain and Germany, became the lucky coven indeed when they took the plunge, put their cash and heads together, and came up with 'Nice Ideas'.

Despite the name, in 18 months, they've successfully transcribed and written for their old machines Intellivision and Intelligent Games, and have just finished writing 10 original games for Colecovision.

Bernard (l'artiste) plots and pigments every *pointilliste* pixel on his giant *Gauguinesque* graphs. He works closely with programmers to get both optimum playability and aesthetic clout out of available kilobytes. Bernard explains why Mattel originally needed a base in Europe, and what it is that Euro-talent can offer.

"American artists have a different kind of talent. They can draw things — like houses and cars, but they can't draw a portrait or a tree. Europe has a massive artistic heritage — and has spent hundreds of years training art schools. You just have to look at the work to see."

If this is the dawn of the computer age, la Belle France has left getting-up until the crack of midi. There has been little home production, and the importation of foreign machines has been hindered by France's ideosyncratic though efficient T.V. system, SECAM. Of the few that are sitting in homes (compared to GB), the Oric-1 and elderly Philips G7000 games machine seem to be the winners. Amazingly, computers are only now being introduced into schools.

Is there a danger of France missing out?

"Ah non," ripostes Bernard, "Computers will be big here.

"The French have been prudent in first giving themselves time to think, study and get ideas before going in."

Would he care to re-phrase that?

"Pardon?"

Rien du tout, pal.

NICKY XIKLUNA

This Dish is a Dish...

NICKY XIKLUNA gets into Interhack Technology



UNISAT 1, together with its back-ups 2 & 3, won't go aloft until 1988. When it finally does hang on in there, it'll be carrying 240 watts of British Telecom, and will be used for Direct Broadcasting (DBS). This'll eventually transform the legions of transmitters across the land into museum pieces. And absolutely no-one will have problems receiving Channel 4 ever again! In the meantime, other satallites are ahead, here, or rather there, and they'll be in use a lot sooner.

Spanning Stateside to Europe this year along the metasphere's busiest buzz-route comes SATSTREAM. It'll comprise a massive amenity, mainly, for the multinationals, extending big business satallite links across North America. Britain's already set-up to catch this stuff with mammoth receiving dishes (up to 32 metres diameter) at Goonhilly Down and Madley.

Even as I monologue away, the world's store of 1,000 or so satellites are twinkling above me. VCS machines in Space.

Most are controlled by INTELSAT, representing 108 countries. INTELSAT 'dishes' out satellites to official signatories — that's British Telecom and Mercury so far in the UK.

So exactly when and how micro/modem users gain access to satellite depends on who leases out a slice of the action from BT.

Indeed, software transmission has already been proposed by some candidates along the lines of software transmission by cable along the West Coast.

The technology exists. Every rooftop can be enhanced by its own monster gleaming receiver dish and antennae. Millions of menial and mediocre messages could go 22,300 miles in a vertical direction, bounce off the satellite in geostationary orbit, and so back down again to their earthly destinations. In half a second (give or take a nanosec or two).

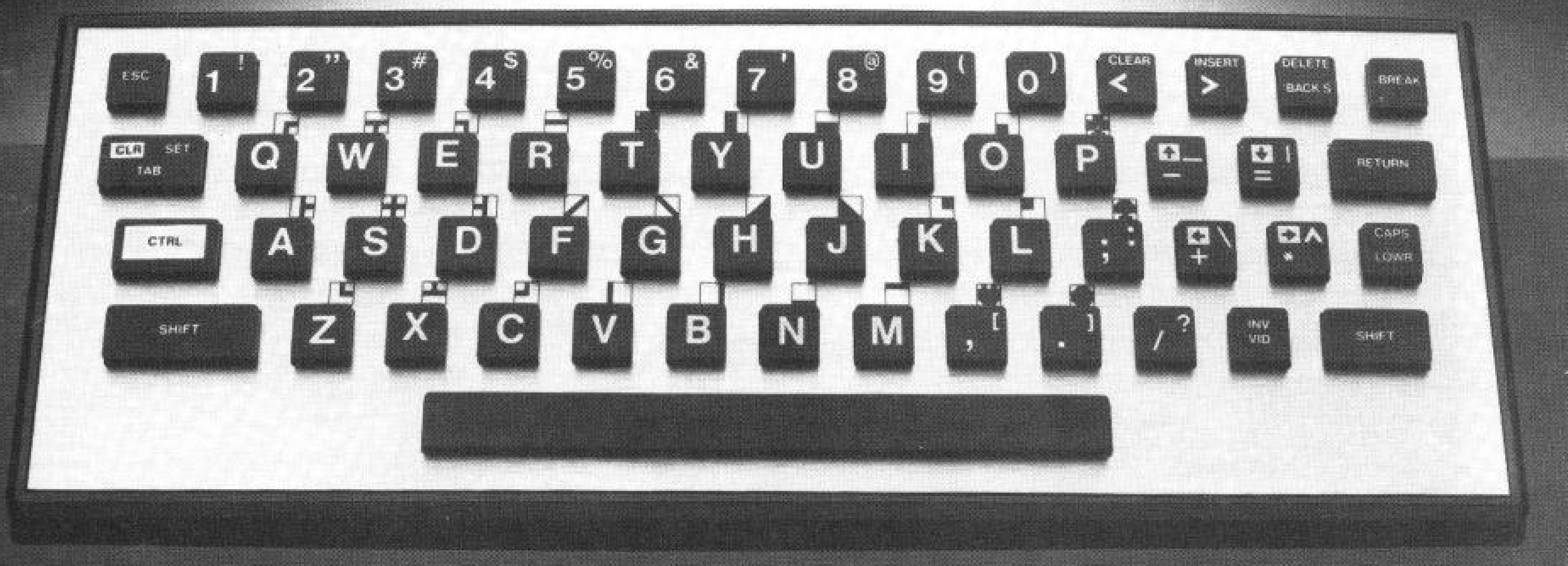
Slipping into conjecture — what rich pickings are there in all this for the well-seasoned hacker to lick his chops over?

Surely it is only right and fitting that alien dudes, whenever they should appear, ought to debut via the good offices of some diligent midnight intersat hacker! Hacker Sat! Hackellite? Hacknik?

Back to the real world: private business has stormed ahead of nationalised database networks. Meanwhile, B.T. carries on implementing its mysterious 'System X' — changing over exchanges from analogue to digital. Today, your call to the States has a 50% chance of going by satellite.

What next? You can buy your own dish right now from about £5,000 upwards (installed). Or you can buy a chunk of Satstream direct for a mere £50k per annum and rent bits to your pals. Failing that, you'll just have to wait for Andy Green's upcoming monster epic, 'Build a Receiving Dish from Cornflake Boxes'.

A VITAL PIECE OF SOFTWARE FOR ATARI 400 OWNERS.



A RUBBER KEYBOARD.

The flat keyboard of the Atari 400 isn't very satisfactory to use.

It simply doesn't put you in touch with the computer in the same way as a push button one.

Our keyboard fits snugly over your present Atari 400 keyboard and does exactly the same job.

Only it does it better.

It makes programming and game playing so much easier because you know instantly which keys you've depressed.

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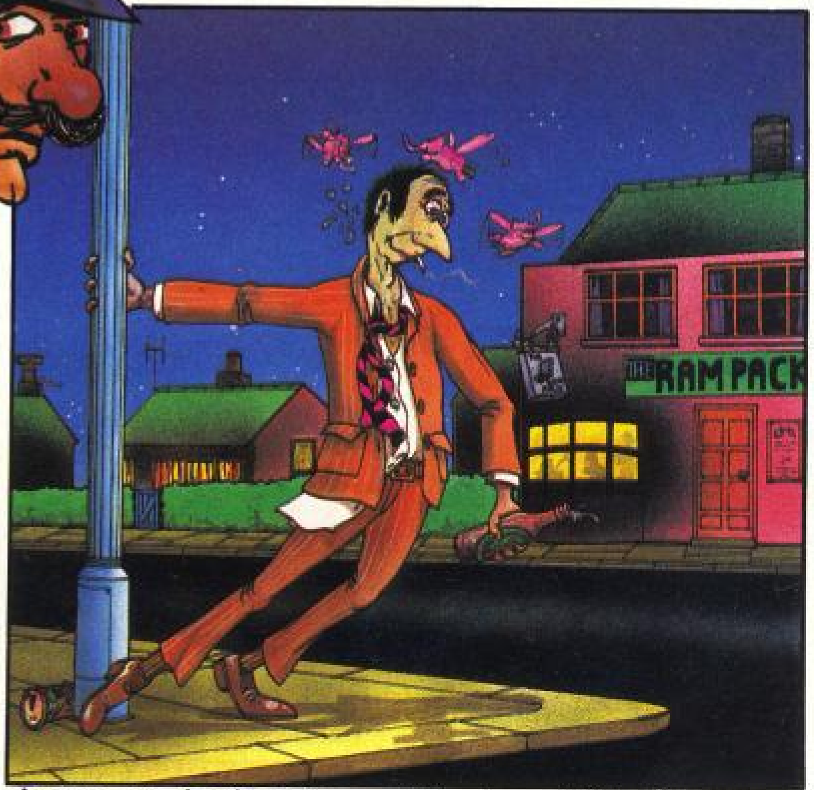
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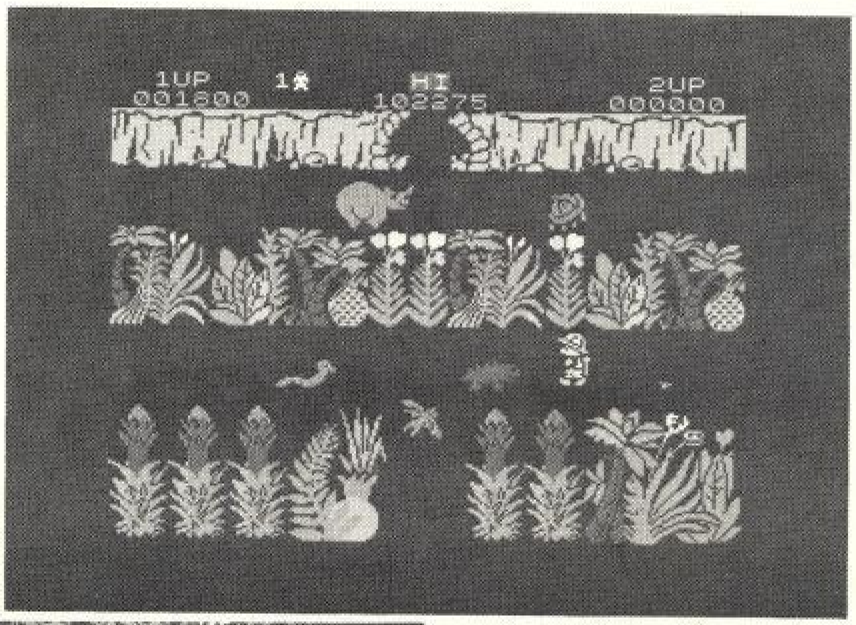

START
SABRE WULF
Lake
Hut
Temple
Location of Sabre Wulf
Possible Amulet Site
Flower

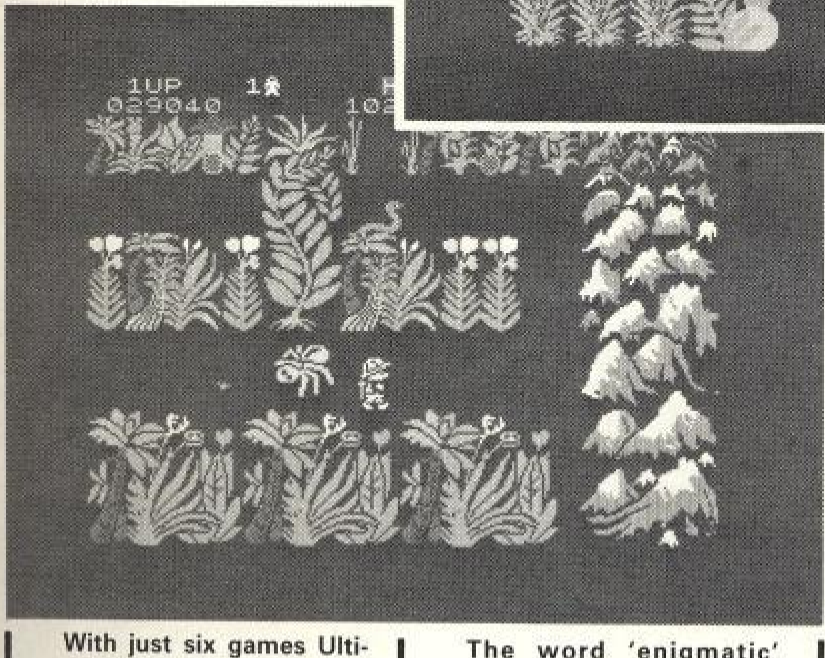
WATCH YOUR STEP

it's a real jungle out there!

Ultimate Play-the-Game's newest and lushest hit to date is *Sabre Wulf*, a mean, fast, brilliantly coloured jungle frenzy with all the puzzles and super-smooth coding now expected from its authors. Or is it nothing more than an over-priced retread of *Atic Atac?* RICHARD BURTON plays the game . . .

"In the jungle, the mighty jungle, the lion sleeps tonight . . ." So sang Tight Fit in 1982 (and so did Karl Denver, for those of us with longer memories). In a strange way the song seems more than appropriate to Ultimate's newest offering, *Sabre Wulf*, because the lion is about the only beast that does sleep — every other creature in this jungle is nauseatingly active and out to make life hell for you!





With just six games Ultimate have carved themselves out a heavy rep with the games punters to the extent that each new release is as eagerly anticipated as the next Michael Jackson Album. So far they have only once gone back to a previous game theme for a new release. *Lunar Jetman* was a souped-up version of *Jet-Pac*. With *Sabre Wulf* they have returned, justifiably, to many of the arcade-adventure elements that made *Atic Atac* such a chart success.

The word 'enigmatic' almost sums up the game. It comes in a plain black box with simple title stickers front and back. Inside a six-page fold-out leaflet contains cryptic comments in purple prose that are little or no help. Basically, you're on your own in discovering exactly what this game holds.

The scenario, as said, is a vast jungle maze, glossily rendered in colourful hi-res graphics. (See map opposite for crib.)

You have control of a tiny, sword-wielding (?) explorer in search of four parts of an amulet. Obstacles are constantly appearing in his path in the form of snakes, bugs, lizards, wart hogs, gorillas, hippos, rhinos, etc. There's a list of 14 of the critters in the instructions. A quick thrust with the sword will finish off most of these or, in the case of the larger beasts, at least scare them off. Also the local plant life can aid or endanger any of your three lives.

Many items appear in your path which can be picked up simply by crossing them. Unfortunately, *Sabre Wulf* doesn't feature *Atic Atac's* on-screen display of what you're carrying. Again, it's up to you to find out what these items are and how they can benefit you.

Sabre Wulf is a safari of discovery, a Big Game hunt where you are the prey. It's the nearest yet that Ultimate have come to an adventure game (note the *Hobbit*-style 'percentage complete' indicator) and is sure to fuel the letters pages of the computer press for some time.

It's another high quality Ultimate product and value for money (just about), even at £9.95, a figure that Ultimate claim reflects "higher development and packaging costs".

Luckily it's not the sort of game that will lose its appeal quickly.

HOW WE GOT OUR SABRE WULF MAP

Sabre Wulf had been out a couple of weeks when BIG K's office phone range. "Would you like to see a complete map of *Sabre Wulf*?" asked a voice. We gulped an amazed "Sure" and the caller rang off. No more than two minutes later the phone rang again. "Interested in a map of *Sabre Wulf*?" said another voice. An even more surprised affirmative from our end and, a few days later, two brilliant maps were in our hands. They were both so good that we decided to combine them into one — the one you see here. So take a bow *Alex Crabtree of Newcastle* and *John Cheal of Reigate — Sabre Wulf* Champions both.

Got any tips about *Sabre Wulf*? Found out any sneaky tricks to beat the jungle? Send them to Letterbase. We'll use the best and bin the rest!

WHACKO

FRENZY/BBC

Breakout goes whacko. You remember *Breakout*? No? Am I getting that old? *Breakout* is the game where you have to trap a bouncing ball in a box by moving a line around a screen. *Frenzy* is a variation of that.

The story goes thus — deadly sub-atomic particles (Leptars) are loose in a scientific laboratory and you have to trap them before the time runs out. Your tool in this mammoth task is a robot craft behind which is a green ion trail. This you use to draw ion lines which, hopefully, will ensnare the little devils. Trouble is, if you get hit by a Leptar while you're on the draw, so to speak, you get clobbered. After a few screens things get nasty, you get more Leptars to deal with plus Chasers (they chase you).

This is a very simple game, easy to play but difficult to master, as they say. But, unlike many simple games it's very addictive. The kind of thing you spend all night thinking 'just one more game before bed' and then realise the sun is creeping over the top of the screen. — K.A.

Maker: MICRO POWER
Format: cassette
Price: £7.95
Graphics: KK
Playability: KK
Addictiveness: KKK
Overall: KK

CUBEPAINTER

BLOCKBUSTER/BBC

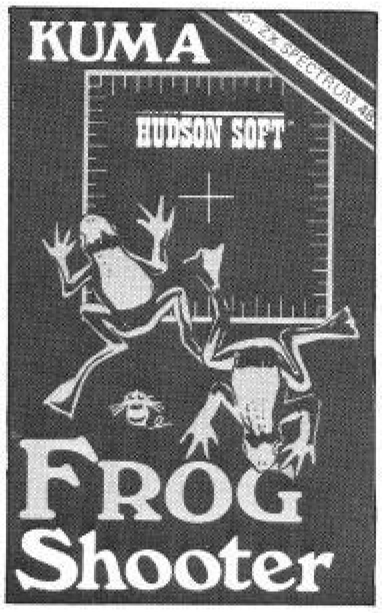
So here we go again. *Q-Bert* does a quick change act. Master of disguise, he assaults us from the games shelves as any number of characters.

In this particular variety he wears his rabbit cozzy and calls himself Harvey. (All due respects to Jimmy Stewart.)

Micro Power, masters of the multicolour moving screen, never fail to live up to their rep. as quality games writers and this one is particularly nice. Young Harvey, so they tell us, is on a quest for the Elixir of Life (as supplied by your friendly neighbourhood Leprechaun). Of course something as valuable as The Elixir requires a little more than money and Harvey is given a task to complete. Paint a pyramid? Well, nearly right. In fact it's the Giant's Causeway and Harvey approaches the task with considerable style. The bouncing ball is there, natch, but the snake has gone and we're left with a fox who leaves grubby footprints all over the nice shiny paintwork. The only way to get rid of him is to lure him over the edge of the causeway.

This is a good game. If you like *Q-Bert* then you'll like *Blockbuster* which is well up to Micro Power's usual standards. — **K.A.**

Maker: MICRO POWER
Format: cassette
Price: £7.95
Graphics: KK
Playability: KK
Addictiveness: KK
Overall: KK



CROAKER

FROG SHOOTER/SPECTRUM 48K

Fairly duff arcade shoot-out. You (looking more like a moth into military chic than any kind of frog — but let it pass) are stuck in an alley drawn with the most primitive and confusing kind of 3D technique. Along this low-res byway come bouncing various Kermits and giant eyeballs and so forth. Naturally, you must shoot them.

It's an uninspiring task, even though the red ball projectiles that pop from your antennae when you press the fire button are one of the few neat things about this game. Another neat thing is the bouncing effect contrived for the objects in your path. The blue "mystery cannonballs" that come bowling along with quite monotonous regularity are almost too neat, and invariably blow my uniformed moth to smithereens.

Without a joystick, controls are the clumsy IJLM (or WADX) keys that I always find particularly frustrating. But even were the manoeuvring easier, this would still be nothing more than a lifeless, boring game. — D.R.

Maker: KUMA/HUDSON SOFT
Format: cassette
Price: £6.95
Graphics: K
Playability: K
Addictiveness: None
Overall: K

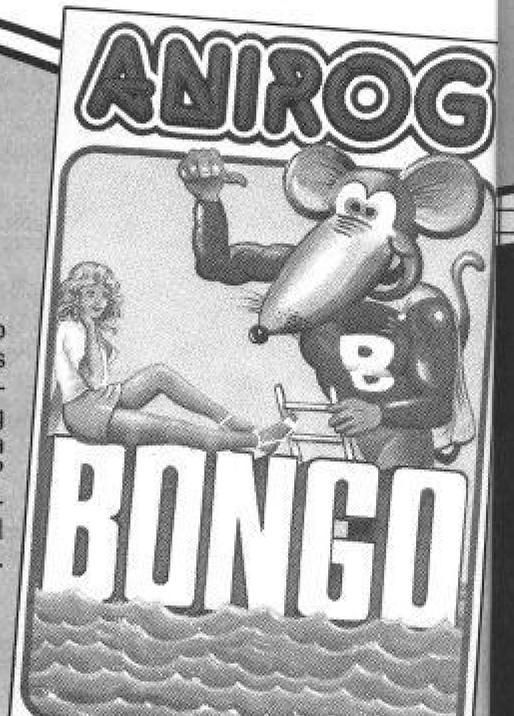
BINGO!

BONGO/VIC 20 + 16K, CBM 64

Probably one of the best ladders 'n' levels games available for the expanded Vic. Set in a riverbank cave it chronicles the attempts of Bongo the mouse to outwit the dank denizens of the clay caverns and win the heart of a lonely princess (splutter). You of course take the role of the lovelorn rodent and with the aid of a well oiled 'stick must guide him past nine sheets of adversaries. To move twixt these sheets you must collect a fistful of flashing diamonds, and that entails some pretty hairy manoeuvring I can tell you.

The sprite graphics are bright and suitably cute and hardened gamesters will appreciate the wide variety of strategems available. I kinda suspect that the key to lasting success is through the secret transporters hidden about the screen. These portals are unavailable to the mouse-hunting monsters on your tail and so become invaluable escape routes. Bonus points can also be racked up quickly by gobbling up the BONGO letters which float around the screen during the early stages. All in all it's a hectic piece of work. I have yet to survive the gamut of screens and win the head of the princess, but I'll continue to plug away. I mean, shucks, a mouse and a princess? Bizarre notions keep me flailing away in the hope that all will soon be revealed. — **S.K.**

Maker: ANIROG
Format: cassette
Price: £7.95 each
Graphics: KK
Playability: KKK
Addictiveness: KKK
Overall: KKK



SEA HUNT

SEA QUEST/DRAGON

Maddening. I mean, an apparently uncomplicated and straightforward adventure with a limited vocabulary and graphics that, although unspectacular, are at least quick, clear and pleasingly functional. It is quite frankly an utter doddle to work your way through the first 20% of this thing.

Then what? Quite clearly there's some large treasure heard somewhere (though, actually, you're never told as much). Equally clearly, you're expected to explore underwater at some point. Try it, however, and you end up in a wooden box (though not, disappointingly, in Davy Jones' Locker).

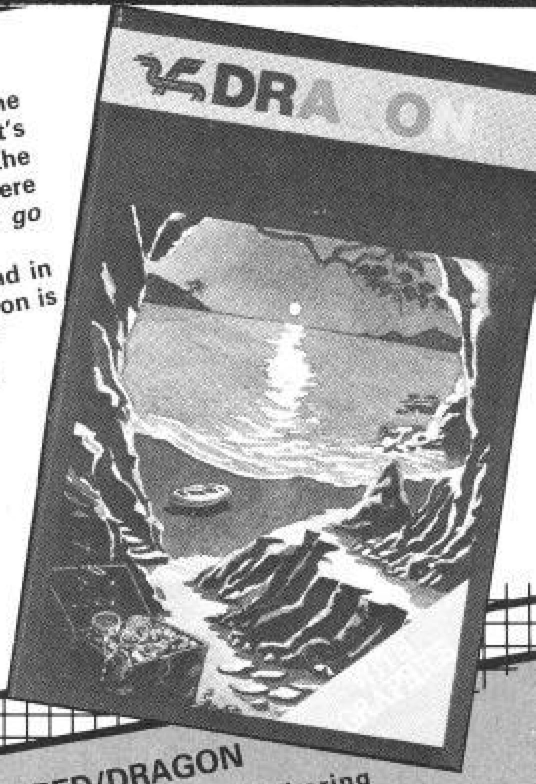
So where's the aqualung, then?

I've looked everywhere. Examined everything. Tried every conceivable combination of object and command in every location I can find. Not one single flicker of further possibility. All of which I'd put down to experience or my own lack of imagination were it not for one thing. It's either a howler of a bug or an extremely shoddy piece of writing but it's driving me mad.

At the initial location, there are two 'obvious directions' but the game will only let you go in one of them. As this is one of two directions along the beach (from which all the rest of the adventure seems to flow) it's reasonable to assume that the things you need are down there somewhere. *But you can't go that way!*

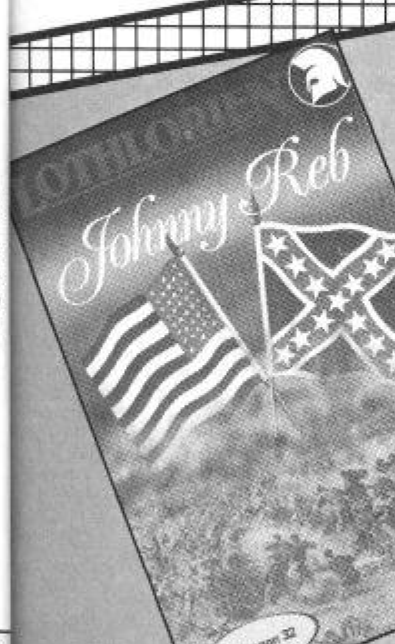
Apart from running round in circles, the only other option is to drown yourself. — **D.R.**

Maker: DRAGON DATA
Format: cassette
Price: £10.95
Graphics: K
Playability: K
Addictiveness: K
Overall: K½



REBEL WITHOUT APPLAUSE

JOHNNY RED/DRAGON



An infernally dull strategy game set in the American Civil War. Or at least, so it says here. Anyone who can imagine any setting at all from the pathetic, squiggly figures that flicker their way about the most uninspiring low-res battlefield I've ever seen is a better strategist than I am. Indeed, it's hard enough telling the difference between infantry and cavalry, your men and the others (player two's or the computer's) without a severe case of eyestrain and a thumping headache, let alone conjuring up any sense of there being Yankees and Confederates, Mason-Dixon Lines and all that stuff.

In fact the basic division between cavalry (move furthest, last longest), infantry (don't move so far or last so long) and artillery) (shoot things) could come from any European or American battle from a span of about two centuries. Both the rules of engagement (basically attrition — each unit has strength points, which are knocked off alternatively until one wins) and the visual representation of it (opposing squiggly graphics flashing in turn) are tedious and unimaginative.

The thing is also fearfully slow. The computer seems more concerned with boring you into submission than blasting your infantry. Everything takes hours. Even the final totting up of the score — performed before your very eyes — is carried out at a speed that would disgrace an innumerate five-year-old.

Very low-res. Very Basic. Very bad game to spend hard-earned money on. — **D.R.**

Maker: LOTHLORIEN
Format: cassette
Price: £6.95
Graphics: None
Playability: None
Addictiveness: None
Overall: None

NIX-HIC-PIXIES

SHENANIGANS/DRAGON

A reasonably amusing little adventure that would seem eventually to lead to the end of a rainbow and, of course, the pot of gold concealed thereabouts by cautious leprechauns. So the blurb would have it, anyway.

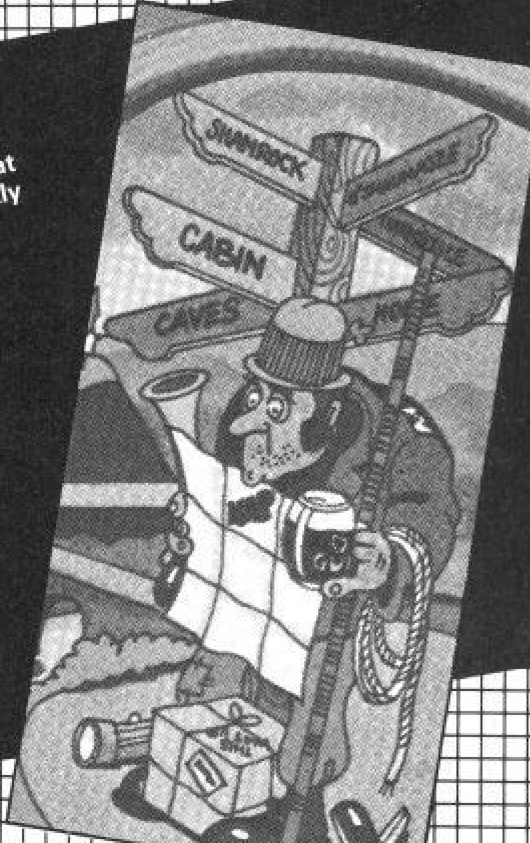
Odd, then, that it begins in a city people with stroppy landlords, vicious muggers and cops ever vigilant for cases of indecent exposure. (Be warned: once in jail, there is not only no way out, but also no way of QUITting the game. If you haven't SAVEd, you'll simply have to LOAD up again).

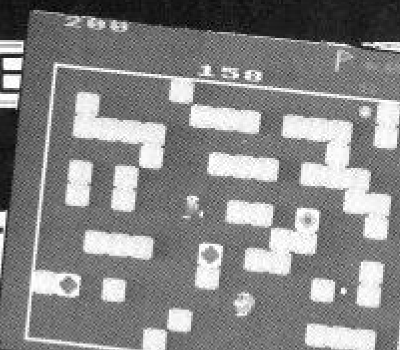
Of Little People there is, however, no sign. Unless O'Malley the Irish barman is a leprechaun, that is. It seems unlikely.

Presumably all hinges on getting into the subway and whatever lies beyond. That feat has frankly proved beyond the resources of this hardy adventurer, although in the process of trying I've drunk so many beers at the O'Malley pub that I'm surprised I can still move from one location to another in a straight line.

All good fun actually. Give me pubs and muggers over dungeons and goblins any day. A limited vocabulary and fairly dull graphics don't spoil what turns out to be a pleasantly thorny game — **D.R.**

Maker: DRAGON DATA
Format: cassette
Price: £7.95
Graphics: K
Playability: KK
Addictiveness: KK
Overall: KK





BLOCK WAR

RENEGADE ROBOTS/BBC

The only good robot is a dead robot and make the most of it because you can be sure as hell that the Commission for Robot Equality is only a spit into the future. Which brings us to *Renegade Robots*. This is a bit like a giant sliding block puzzle, added aggro coming by way of the now familiar group of vicious robots.

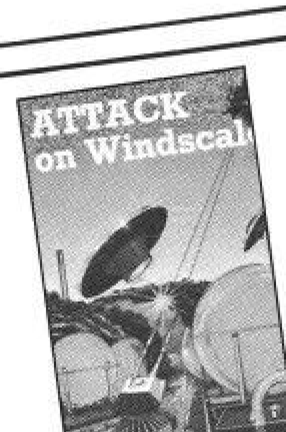
OK. The planet is under dire threat of invasion, but fear not, scientists have everything under control. Or they did have until a series of explosions wrecked the production of the secret weapon they were working on. Amongst other things the explosions caused the robots manning the production line to go berserk. The only way to save the line is by aligning three key control cubes or destroying the renegade robots. Moving blocks means getting behind them, gritting your teeth and shoving like hell, whereupon the block careers across the screen, junking anything in a straight line between here and eternity. You know the *Pongo* lick.

Once the robots are sorted out some idiot scientist makes the same mistake and you have to start all over again. A robo-hunter's job is never done.—**K.A.**

Maker: SENATOR SOFTWARE
Format: cassette
Price: £6.95 approx.
Graphics: KK
Playability: KK
Addictiveness: KK
Overall: KK

SELLAFIELD SUNSET

ATTACK ON WINDSCALE/CBM X64



Somebody wants Windscale, although what they're going to do with it heaven only knows. Maybe they've got a beach they don't like people swimming in.

So what is *Attack on Windscale*, adventure or arcade? It's both. On two cassettes already. Part one is standard Space Invaders fare with a pretty background, but part two could be a Purple People Eater for all I know.

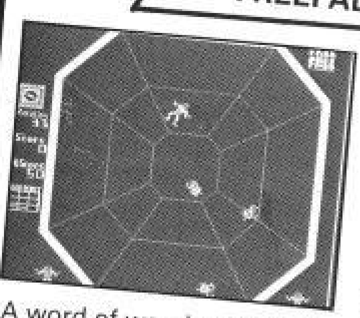
There's this problem, see. You don't get into the adventure without a password and the password is hidden somewhere in the bowels of screen four of the action game. We put our best men on it (some were never seen again) but no one got past the second screen. Result: no password/no adventure. All we know is that you have to find a quartz crystal which you use to stop the reactor from going critical. You then have to find the nasties who started all the trouble and give them a seeing to.

If you're suddenly seized with an uncontrollable desire for an adventure with *Space Invaders* for dessert then you might save yourself with this offering. — **K.A.**

Maker: PHOENIX SOFTWARE
Format: cassette
Price: £6.99
Graphics: K
Playability: K
Addictiveness: KK
Overall: KK

BILIOUS PARROT

FREEFALL/BBC



A word of warning from one of my more informed sources — floating around in zero gravity makes you sick as — nay, sicker than — a parrot. Better to adopt a more sensible attitude and go for it in the Acornsoft way.

Freefall is as close as the likes of you and I are going to get to zero gravity, commercial space travel still waiting for its Branson-figure. The action takes place on board the deep space station *Coriolis* which has been attacked by Alphoids. These boys are all fun. They've injected the air supply with cyanide and only one crew member has reached his space suit in time.

It's not only Alphoids that the crewman has to contend with. The place is full of 'oids; Waspoids, Craboids, Lobstoids — all do their bit towards making life very hairy.

The game simulates free-fall conditions very nicely. You can move around either by using the suit's air jet or by pushing or kicking against walls. The beasties are disposed of by kicking, punching or catching and throwing one of the bombs that float around the station. It's not easy, though. If you don't have a joystick think seriously about having a few extra hands grafted on.—**K.A.**

Maker: ACORNSOFT
Format: cassette
Price: £9.95
Graphics: KKK
Playability: KK
Addictiveness: KK
Overall: KK

TAKE THREE

3D LUNATTACK/DRAGON 32

The great Seiddab war rages on, this time across the pock-marked surface of the moon. In your bristling new Hover fighter you must breach the three defences of the ghastly alien Seiddab base and destroy their Command Bunker. The first defence zone is patrolled by some fairly mindless robotic tanks and so is (relatively) easy to pass — once you've mastered the complexities of prolonged Hover flight! Zone two is rather more difficult as you must fly across mountainous terrain through great clusters of aerial Seiddab mines. I invariably met my demise here, thundering into the mines with all the flying skill of a shortsighted pigeon. I never managed to see the range of self activating missile silos beyond, nor the alien base itself.

The onscreen display is comprehensive and includes cockpit cross hairs for pin pointing the enemy, automatic radar, fuel monitor and temperature display. This is particularly useful as direct hits and exploding mines cause the hull to overheat, which means pushy pilots will soon roast. Scrolling throughout the game is smooth and the bleak hi-res graphics are delightfully effective. I particularly liked the distant Earth which appears on the horizon as you rocket aimlessly around the luna surface. All in all this is a classy climax to Hewson's Seiddab trilogy and so is well worth checking out. It's certainly as good as those highly-rated 32 offerings from the Tom Mix stable.—**S.K.**

Maker: HEWSON CONSULTANTS
Format: cassette
Price: £7.95
Graphics: KKK
Playability: KK
Addictiveness: KKK
Overall: KKK



TAIL END CHARLIE

Star Raiders circa World War II. Despite the army fatigues this is pretty standard shoot-'em-up fare, in which enemy fighter planes whirl and tease your straining gunsight. You've four difficulty levels and thirty missions to complete, which vary between high-level bombing sorties and low-level rocket attacks (phew!). It must be said that considerable effort has been made to turn this into an authentic flight simulation/arcade hybrid. Rather cleverly height and movement all have relative effects upon the action and the flight deck details any damage done to the ship.

You also receive messages from the pilot during the mission — nothing inspires confidence like being rubbished over the airways! But despite this fine realisation I found the game a little lacklustre. All the careful embellishments tend to slow down the onscreen action.

I also disliked having to negotiate the Softlock security code every time I donned my flying goggles. Like *Jet Set Willy* the game comes with an numerical grid which must be consulted prior to entering your Lancaster. At least this version isn't colour coded and so doesn't alienate those colour blind/black 'n' white TV owners. Small mercies eh?—**S.K.**

Prog: NIGHT GUNNER
Maker: DIGITAL INTEGRATION
Machine: SPECTRUM 48K
Format: cassette
Price: £7.95
Graphics: KK
Playability: KK
Addictiveness: K
Overall: KK



THIS YO-YO NO NO-NO

I sit here with a new game in my hand. A small, rather unimpressive gold package, with what looks like a kangaroo on the front. On the back is inscribed the immortal legend, "probably the finest graphics ever programmed into a game on the BBC". Oh yeah? And how many times have we heard that before? Hang about . . . HANG ABOUT. These really *are* the finest graphics ever seen in a BBC game! Traditional block characters make a hasty departure via the window, enter stage right a new generation of cartoon type characters, with an almost filmic quality about them. The secret is Mode 1 hi-res graphics — more detail than the usual Mode 2 rubbish.

Mind you the author's a nutter. Trogs with yo-yos signals white coats time for me.

The trog is the central character. He runs up and down ladders and jumps onto platforms, Donkey Kong-style, avoiding balls and daggers thrown by an unseen hand.

It's really something to see. The trog is Disney-like in character. He scuttles around the screen with his hands clasped behind his back to disguise his secret weapon — a . . er . . . yo-yo? — which he uses to great effect against his attackers.

This could set a new standard in BBC graphics. If you see it, buy it. — **K.A.**

Prog: FRAK
Maker: AARDVARK
Machine: BBC
Format: cassette
Price: £6.95 (approx.)
Graphics: KKK
Playability: KKK
Addictiveness: KKK
Overall: KKK

3-TIME LOSER



Three games for the price of one. This is too good to be true — or is it? How, one asks, do these people manage to supply three games for the price of one? Easy, they fish around in other people's dustbins.

All three games are for two players (one of them can be the computer). First there's *West World*, a Wild West shoot-out. Each player controls a cowboy who walks like a dog. Next is *Space Race*. Rather like a primitive *Rocket Raid*, the idea is to race the opposing spaceship through a tunnel and into a docking slot. There has been a great deal of speculation over the shape of the spaceship of the future but an ace of diamonds must be pretty low on the list.

Finally we are given *Kamikaze*. 'A suicidal onslaught'. The name of the company wreaking this havoc is Terminal Software. — **K.A.**

Prog: TRIPLE TOURNAMENT
Maker: TERMINAL
Machine: COMMODORE 64
Format: cassette
Price: £7.95
Graphics: nix
Playability: uh-huh
Addictiveness: pass
Overall: Deep 6

TWANG!



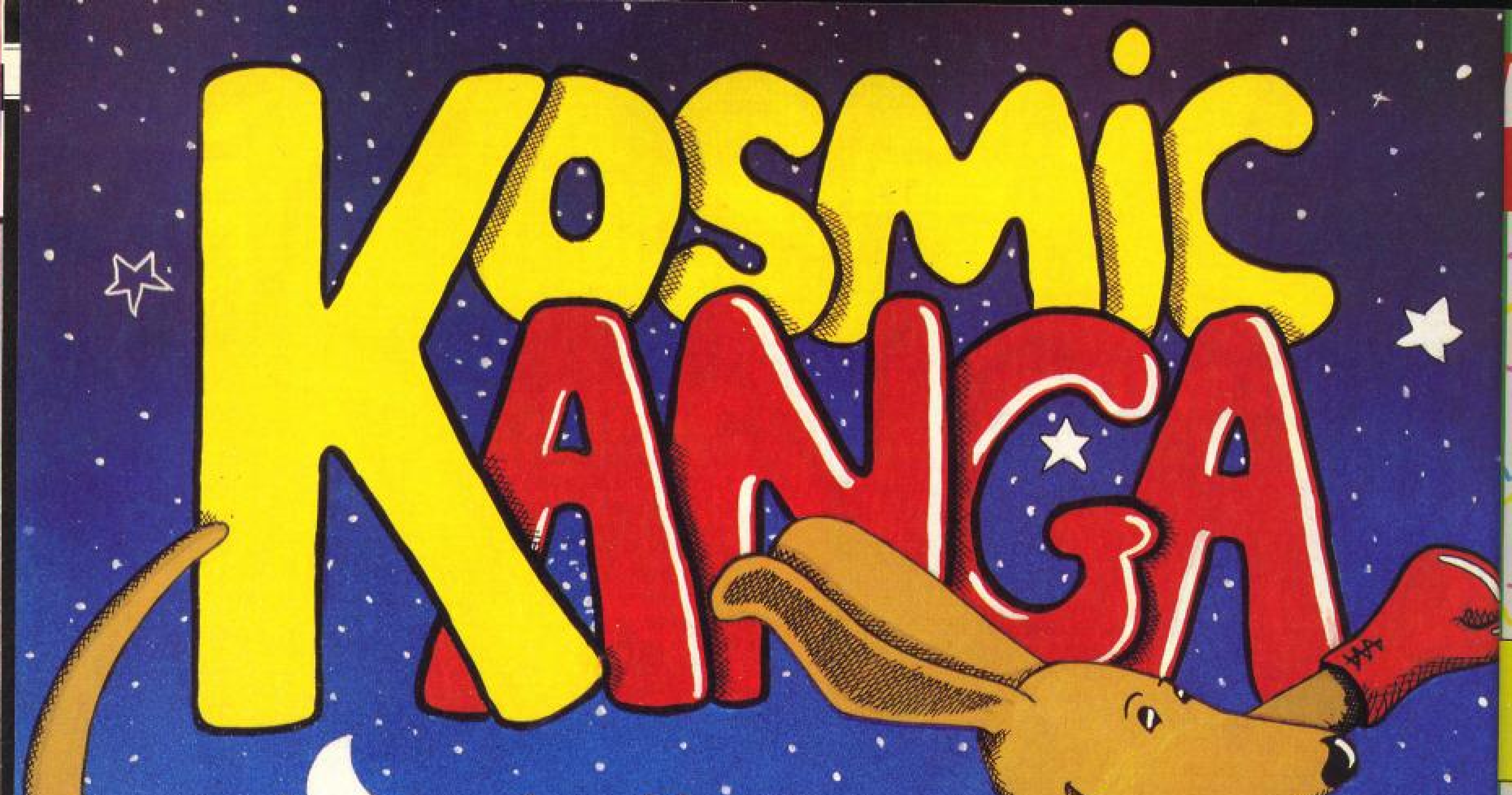
Not exactly hip but certainly hot! After a couple of notable duffers (*Eskimo Eddie*, *Pogo*) Ocean return to form with *Cavelon* — a quite superb maze game.

Christian Urquart, author of the best selling *Kong* and *Hunchback* for the Spectrum has excelled himself here with this infuriating but compulsive medieval quest.

As a portly knight you must gird your loins and waddle bravely through the portals of the dread castle Blah in order to rescue the incarcerated princess Guinevere. There are six levels to traverse all of which boast considerable peril. (She had better be worth it.) To move between the floors you need to collect the portions of door which have been scattered about the maze. These portions are guarded by a host of trigger-happy archers who'll do their level best to deflate your ardour. Only the mystical aura of the legendary Excalibur can protect you and even then only in bursts.

Upon completing each level a little graphic routine depicts your triumph. Although there's a comprehensive joystick option I opted for the more definite feel of the keyboard. Well, if you're gonna spend days on a game you might as well get comfortable, eh—**S.K.**

Prog: CAVELON
Maker: OCEAN
Machine: SPECTRUM 48K, COMMODORE 64
Format: cassette
Price: £5.90
Graphics: KKK
Playability: KKK
Addictiveness: KK
Overall: KKK



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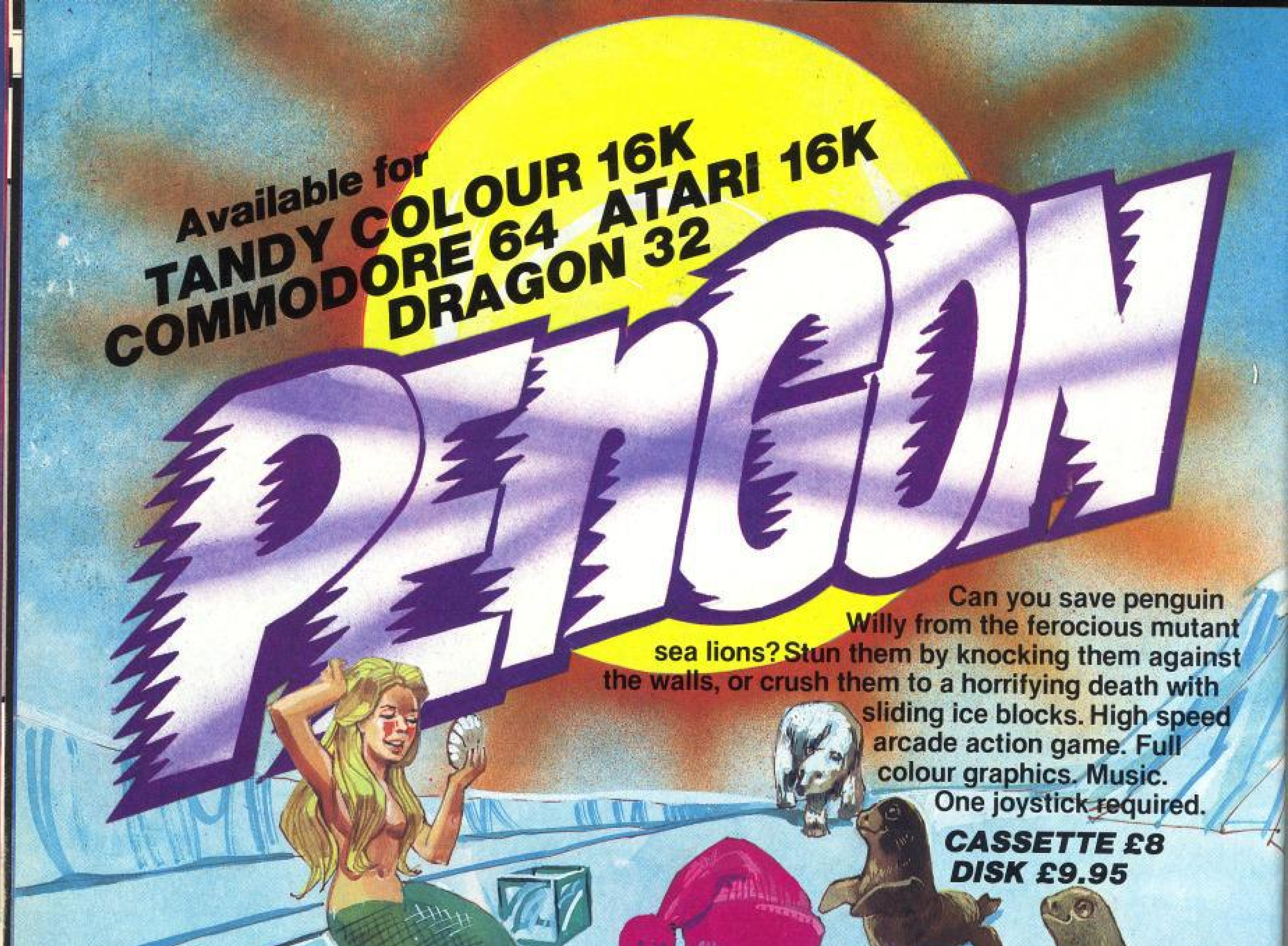
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THE GLORY OF THE RAJ



RAJ SINGH got the break millions only dream of — a part in *Indiana Jones and the Temple of Doom*, mega-adventure and long-awaited sequel to Steven Spielberg's *Raiders of the Lost Ark*. In the movie, he plays the sinister Little Maharaja of Pankot.

Indiana Jones (Harrison Ford) is entertained in the Palace of Pankot by said little Maharaja (Raj Singh) — bejewelled, primped and lacquered in his fabulous costume. Raj holds court with impeccable hospitality and charm. That's until Indy stumbles across him at work one evening, participating in the revival of an ancient and evil sect, in which the Goddess Kali demands human sacrifice . . .

The satin-clad Satanist is now back at school (in Ealing!) and the only beastly thing about him is his Dragon 32, bought with movie earnings.

He prefers adventure games, and drinks Coke, not blood.

"Steven Spielberg, Le Huy Quan (Short Round) and I played the arcade machines at Elstree studios together during the breaks in filming. Steven liked *Pole Position* and *Dig Dug*. He was very, very good. He fixed the machines so that we didn't have to pay to play.

"Being an actor is not my real ambition. I'm really interested in computing and want to work on the business side. Acting would be my major hobby.

"Making the film was lots of fun and a real experience. The set for the actual Temple of Doom was so vast and extravagant I could hardly believe it. I was nervous at first when it came to my part, but Steven was so nice that I soon forgot about that."

THE GREEDY DWARF/ Goldstar/BBC 'B'

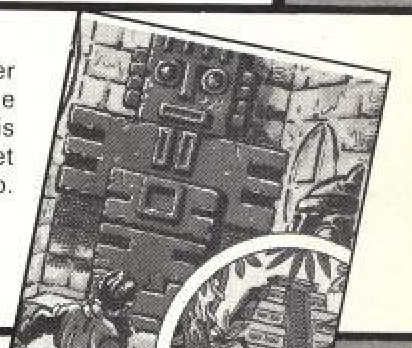
In this text-only adventure, King Arganda — the Indomitable — has had his crown jewels nicked by a dwarf — the Greedy and Loathsome. The adventurer who risks all to recover the missing rocks will be rewarded with fame and glory.

"*The Greedy Dwarf* is the most intellectually satisfying of all the games I played. The text reads as well as a good novel — and that makes a change. This is really important because you very quickly begin to build up a picture of the king's castle in your mind's eye. All the same, for myself, it's a case of 'what good is a book without pictures?' I enjoy graphical adventures most of all."

QUETZALCOATL/ *Virgin/* 48k SPECTRUM

QUETZALCOATL is a real Indiana Jones-style adventure. Raj looked a bit peeved with the prospect of another maze game, but once he got started rapidly became involved. Instead of the usual bird's eye view, our guest found himself inside the scrolling 3D tunnels of the maze. As in the Temple of Doom, directional dyslexics stand to lose not only their way but their lives!

"Did I like *Raiders of the Lost Ark*? You bet! My sister and I saw it about seven times! Getting chosen for the sequel was a dream come true, and I certainly like this adventure. The display is classy and exciting and you get right into the adventure first. The text's entertaining too. Especially when you try to pronounce 'Huitzilopotchli'."



THE PRIZE/ Arcade/ 48k SPECTRUM

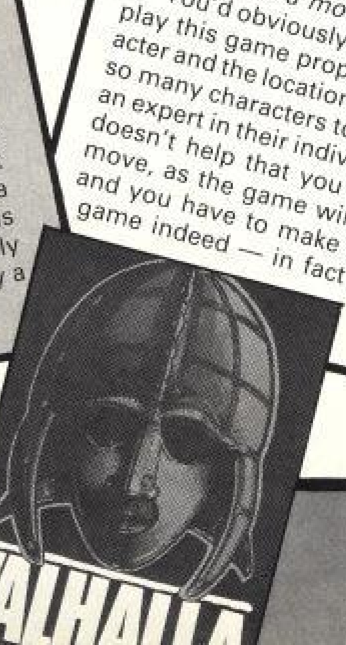
THE PRIZE is your actual maze game. The quest here involves putting the three types of Guardian under heavy manners and collecting the vital 'code pods' in the correct order in order to progress through the levels. Getting to the central maze chamber might give you even more than a gloat — Arcade are offering £5,000 cash money for a snapshot of the final screen. Could this be the final winkling of the walnut of life? Raj didn't think so.

"I think it's a real cheat. For starters it's too much like Berserk, and the graphics are poor and gaudy to the point of naff. It may have a few more screens, but it's basically a shoot 'em up, not what I'd call an adventure. The money is just a gimmick to entice you into playing what is basically an uninventive game. Even money won't make you play a dull game. I think it's boring."

VALHALLA/ Legend/ CMB 64

VALHALLA has been variously described by resident square-eyed adventure hacks as "state of the art", "the best adventure game in existence" and "a real pain". Raj tuned into the epic and watched the 36 independent characters come and go, eat, drink and die. Valhalla plays on alone — like a movie.

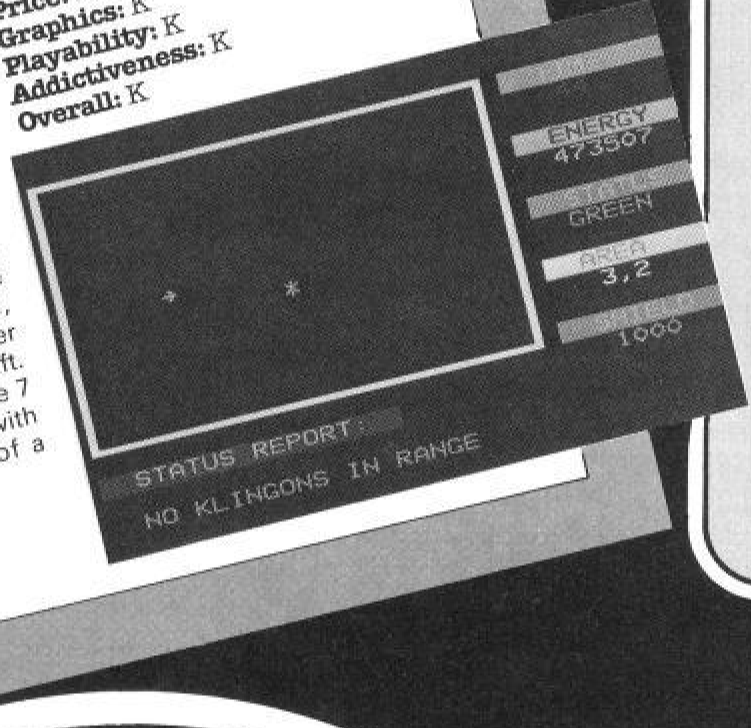
"You'd obviously need a really long time to even start to play this game properly. The graphics have a lot of character and the locations have atmosphere. But there are just so many characters to learn about. You'd have to become an expert in their individual natures in order to progress. It doesn't help that you have no time to think before you move, as the game will go on its own way without you, and you have to make snap decisions. It's a very clever game indeed — in fact I think it's a bit too clever, and I don't really like it."



BOLDLY TRIED
TREK/BBC

Well, folks, the cat's out of the bag. The highbrows at *Acorn User* magazine DO play games with their Beebs. They've written *Trek* and sneaked it out the back door when they thought nobody was looking. Mind you, they don't make it easy, it's a complicated game — three onboard computers, two weapons systems, seven screen displays . . . and it takes some time to get used to. The object of the exercise is to patrol the universe, doing a pest control number on a fleet of alien spacecraft. The trouble is it's in Mode 7 and I had a bit of trouble with the stunning realism of a starship represented by a small and rather lonely arrow. In fact after all the guff in the build-up it's a bit of a disappointment. — **K.A.**

Maker: ACORN USER/MICROGRAF
Format: cassette
Price: £7.95
Graphics: K
Playability: K
Addictiveness: K
Overall: K



SHEEPISH
IT'S THE WOOLUF!/SPECTRUM

"It's the Wooluf," you may recall, was the title of a truly abyssmal cartoon show that escaped from the Hanna-Barbera stable sometime during the late sixties/early seventies. Gruesomely animated and horrendously unfunny, it was one of the worst post "Scooby Doo" (original season) HB offerings ever and consequently marked the end of an area for the once highly-rated fun merchants.

I tell you this simply for lack of anything else to say about this flat offering from The Home of The Things.

As far as I can see it's a straight reworking of Virgin's early clunker, *Sheepwalk*. The graphics are neater but the gameplay is strikingly similiar. In it you must instruct

BETTER BUT . . .
SPACE COMMAND/SPECTRUM 48K

Space Command is the best offering yet from the elderly (cough) team of Poole and Murray, authors of *Yomp* and *Rider*, also from Virgin. Here the quasi-militaristic tone of their earlier work has been replaced with good ol' SF. You play Defender (no relation) to a domed Kandor-style asteroid which is busy ploughing through the galactic spacelanes. As you might imagine this reckless behaviour is guaranteed to arouse the ire of local life-forms and they do their best to flatten the flying city.

It's all very similar to Imagic's old *Atlantis* ROM. The graphics are nice, although nowhere near as sensational as the promo blurb would have you believe, and the gameplay is tough. I've yet to clear the first wave, who look like renegades from Jet Pac! Limited laser fire and shallow fuel tanks add to your problems.

I guess if you're still in the market for a space shoot 'em up then this is worth a look, although after an hour or so I wasn't so much addicted as cheesed off. Hope the next one's a little more original boys. — **S.K.**

Maker: VIRGIN GAMES
Format: cassette
Price: £5.95
Graphics: KKK
Playability: KK
Addictiveness: K
Overall: KK



FRIGID
PENGI/BBC

Pengi is a penguin (yeah?). He's locked in the freezer and you've got to get him out.

In short, another one of those games where you have to shift blocks of ice about in order to get three specially marked blocks in a line. Just to make things harder a flock of Snow Bees, with fatal stings, buzz between the blocks looking for penguins to sting. They can be crushed with the ice blocks or, if you can lure them to the electric fence (in a freezer?) they can be stunned and then stomped on.

Old Pengi is none too bright, though. Once he's aligned the blocks and escaped from the freezer he gets locked up in another one and has to start all over again.

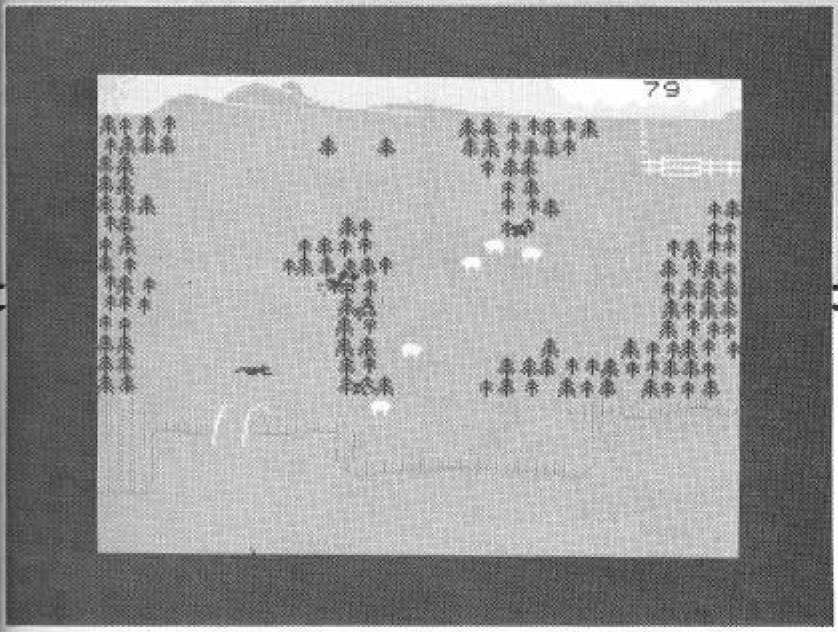
It's all good clean fun but the credibility rating runs a bit low. The day I find a penguine and an electric fence in my freezer is the day I volunteer for the rubber room. — K.A.

Maker: VISIONS
Format: cassette
Price: £6.95
Graphics: K
Playability: KK
Addictiveness: K
Overall: K

your trusty collie to herd a flock of sheep across a bridge, through a wood and into the relative safety of the sheep pen. Meanwhile the hungry 'wooluf' patrols the forest in the hope of gobbling up some stray dinners. Clear the sheet and you're blessed with another flock of even more suicidal sheep. Woolly stuff indeed. — **S.K.**

Maker: CRYSTAL COMPUTING
Format: cassette
Price: £5.95
Graphics: K
Playability: K
Addictiveness: K
Overall: K





HEADACHE

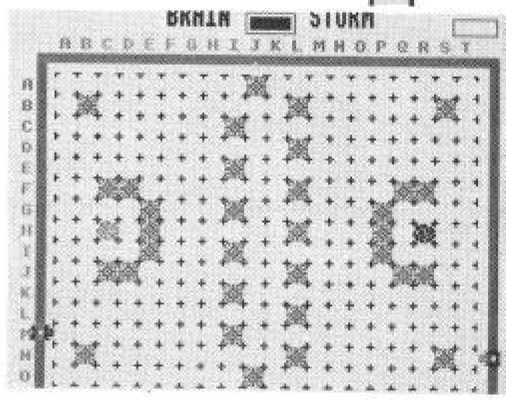
BRAINSTORM/BBC

This month Virgin Games bring us a new concept.

Totally Misleading Instructions.

After a week or so things improved. An envelope containing a letter from Virgin and a small diagram arrived. It seemed the game was virtually unplayable without the diagram. But the really good bit was that the diagram made a total mockery of the instructions in the program itself.

Looking to the game it's a board-type game of "skill, memory, logic and nerve for two players". The idea is for each player to defend his brain (the one on the screen) against the lasers of his opponent by the strategic placing of deflecting prisms. The game comes to an end when one or other of the player's brains is toasted. What more can you say? — **K.A.**



Maker: VIRGIN GAMES
Format: cassette
Price: £6.95
Graphics: K
Playability: K
Addictiveness: K
Overall: K

BIG BIRD

BLACK HAWK/CBM 64

Popular rumour has it that this game was inspired by the Falklands conflict but I would be prepared to bet that Robert Duval strafing the beaches to the delicate strains of 'Ride of the Valkyries' in *Apocalypse Now* had more than a passing say in the matter.

Black Hawk is a highly sophisticated attack aircraft; fast and deadly. Your mission is to seek out and destroy enemy airfields and launch sites on a small group of islands. Your aircraft is fitted with an advanced computer system which automatically switches between two attack modes — bomb-'em-to-hell or shoot-'em-out-of-the-skies.

If your 'on target percentage figure' (how much destruction you cause) is high enough advanced weaponry is automatically fitted, giving greater kill power. All this is accompanied by Wagner's 'Ride of the Valkyries'. Music while you work?

In 'attack' mode you use the joystick to control sights, dropping bombs on the unfortunates below. If you miss any of the mobile targets (tanks, missiles, etc) the computer automatically reverts to 'defence' mode, giving you a second chance.

Fast action and lots of variety. — **K.A.**

Maker: CREATIVE SPARKS
Format: cassette
Price: £7.95
Graphics: KK
Playability: KK
Addictiveness: KK
Overall: KK

AVAST BEHIND!

SEA ADVENTURE/BBC

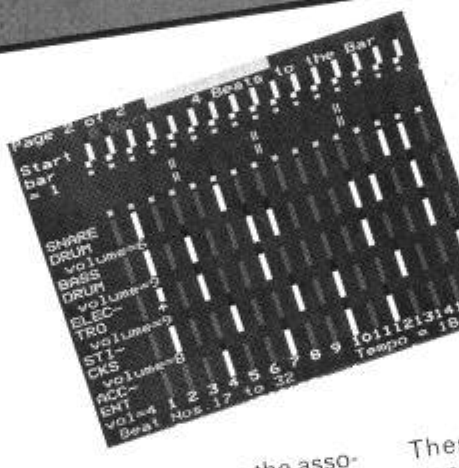
Sea Adventure is just what it says, an adventure at sea — with graphics. Let's talk about graphic adventures. Most fail on the BBC, mainly because of memory limitations. Virgin, with *Sea Adventure*, uphold a grand old tradition in this respect. In fact it's a major step backwards. I mean, BASIC? Not only that, the only way to enter text is by the function keys (this means it knows a grand total of 10 words — impressive, huh?) The graphics in Mode 7 are feeble. The occasional animation displays a profound flair for the non-event. — K.A.

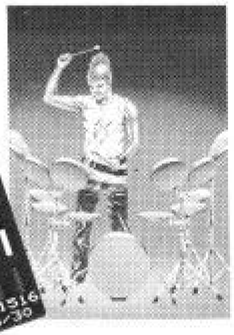
Maker: VIRGIN GAMES
Format: cassette
Price: £6.95
Graphics: None
Playability: None
Addictiveness: Do what?
Overall: None



WHACKATTACK

DRUM KIT/BBC





Some time ago Quicksilva thrust *Music Processor* upon an unsuspecting world, the end result of which was weeks of sleepless nights for parents/wives/dogs.

The success of *Music Processor* has inspired the Game Lords to produce *Drum Kit*, which no doubt will produce exciting responses in any deathwatch beetles that happen to be in the immediate vicinity.

Down the side of the screen are the various drums; snare, base, etc., each of which is designated a row of buttons. The idea is that each button represents a bar beat and you use the cursor and return keys to turn the buttons on and off. If a button is on the associated instrument plays a beat, if not it doesn't. Very simple, very straightforward. You can also use the envelope editor to redefine the sounds and store up to 4,000 beats on tape.

Just as *Music Processor* was, *Drum Kit* is easy to use and quite effective. I had some reservations about *Music Processor* but these were mainly limitations imposed by the machine (the Beeb's sound chip is good but hardly recording standard).

These limitations are less apparent with *Drum Kit*. While its use as a serious instrument are somewhat dubious, as a practice instrument it could definitely prove its worth.—**K.A.**

Maker: QUICKSILVA
Format: cassette
Price: £9.95
Graphics: K
Usefulness: KK
Addictiveness: KK
Overall: KK



LIBRARIAN

ACOS+/CBM 64

ACOS+ doesn't exactly speed up cassette loading but it certainly makes life easier. It enhances the cassette filing system (ACOS stands for Advanced Cassette Operating System), making it operate in a similar fashion to a disc — although it still retains the snail-like qualities of '64 loading.

Part of the reason for discs being so fast is that they keep a catalogue of files on the first sector so that they can move quickly to the requested file. *ACOS+* does much the same thing. It looks at its catalogue and then lets you fast-wind the tape to the position of the file you've asked for. Of course you still have to press the fast forward button but because the computer has control of the cassette motor it can stop when it reaches the right program.

In addition to this you get a whole load of new commands.

Then we come to the BASIC extensions. They operate like normal keywords and give some very nice control over sound and sprite graphics.

All in all a nice package. The only point against it is that no program will work unless *ACOS+* is installed, so forget about any ideas of using it to make a killing on the games market.—**K.A.**

Maker: MELBOURNE HOUSE
Format: cassette
Price: £8.95
Graphics: N/A
Usefulness: KK
Addictiveness: N/A
Overall: KK

SLOW PORKER

PAINTPIC/CBM 64



For about a week *Paintpic* was known as Paint*pig* around this household until somebody quite rightly pointed out that pigs don't feature all that strongly and what looked like a 'G' was more likely to be a 'C'.

My first attempt, intended to be a subtle rendition of Guernica, came out looking like the ceiling had fallen on it. Practice was definitely the order of the day. After a bit the commands became more familiar and it became easier.

There seem to be a few contradictions here. Computer aided design (CAD) by its nature should be as fast as possible otherwise it's just a damned nuisance. *Paintpic* is too slow to be realistic. There's no doubt you can do a lot with it — it has routines for drawing, painting, circles and arcs to mention bu a few — but drawing anything is like waiting around for a bus.

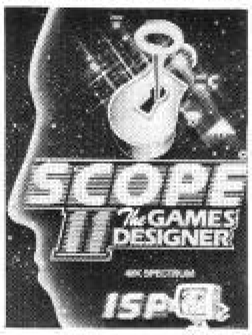
The help screens are totally incomprehensible.

It works, but it's expensive and unless you enjoy spending weeks on a drawing think about something else. —**K.A.**

Maker: KUMA
Format: cassette
Price: £19.95
Graphics: KK
Usefulness: K
Addictiveness: K
Overall: K

VAST SCOPE

SCOPE II/SPECTRUM 48K



Don't be fooled by the "Games Designer" tag plastered across the packaging of *Scope 2*, this beautifully structured utility is quite unlike menu driven customisers such as Melbourne House's *Hurg* and Software Studio's *Games Designer*. It's a far more useful medium-level language dedicated purely towards the manipulation of high-speed graphics, sound and animation. And the beauty of the system is that code generated by *Scope 2* will run independently of its mother tongue. The perfect tool for frustrated games writers! What's more it's exceptionally accessible! You've a mere 36 command words to master which, once written into Basic REM statements, can be instantly compiled into machine cod'a using a simple USR call. Of course experienced m/code hackers will bemoan the system's limitations but others will find it a genuine boon.

Scope 2 itself appears remarkably clean. The only bug I came across was its total refusal to recognise the NOTE command, *Scope's* equivalent to the REM statement. But that's a small price to pay. The package is completed by a useful sprite designer routine and some simple *Scope 2* listings. With this and Gilsoft's *The Quill* the Spectrum games market has been blown apart. Owners of the original *Scope* should upgrade immediately. Great stuff!—**S.K.**

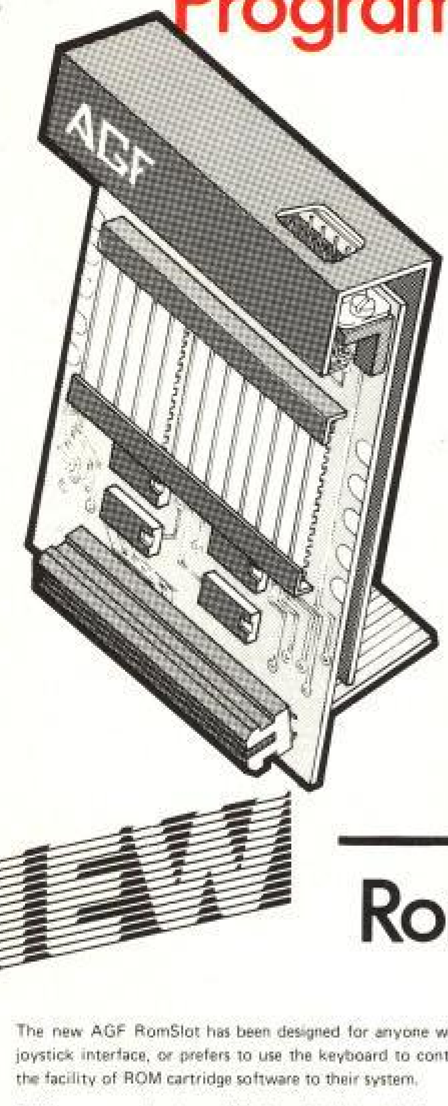
Maker: ISP
Format: cassette
Price: £17.95
Graphics: N/A
Usefulness: KKK
Addictiveness: KKK
Overall: KKK

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ROM games are already available from Sinclair and in August five totally new titles are to be released by Parker Video Games – exclusively in ROM format.

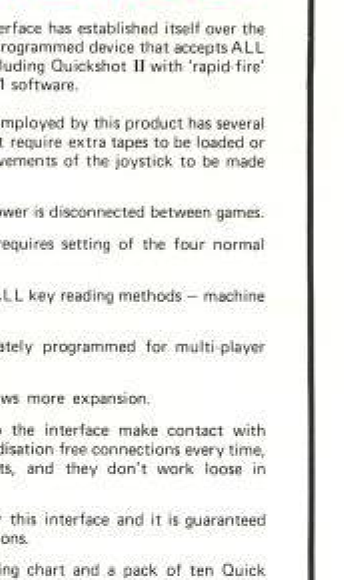
The advantages of this new system are instantly loading games that may have required a larger memory capacity if loaded by cassette. The ROM cartridge is actually a dedicated memory device with the program permanently stored in; ready for immediate use.

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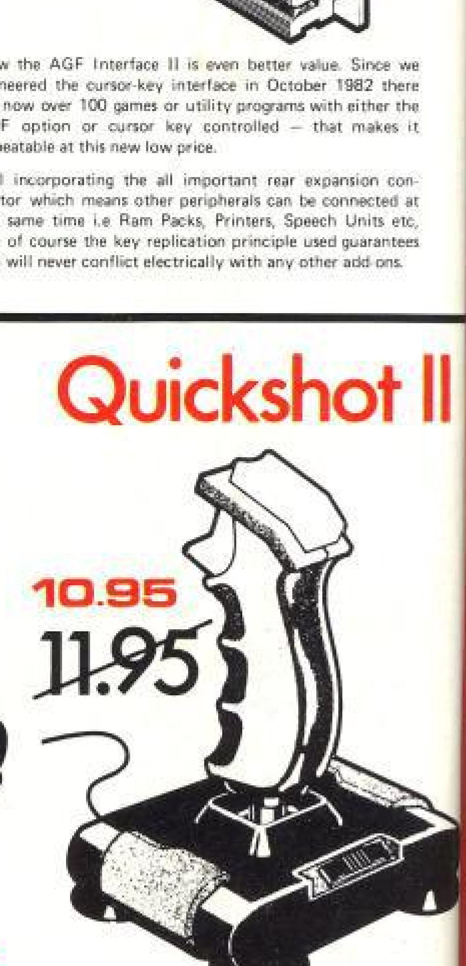
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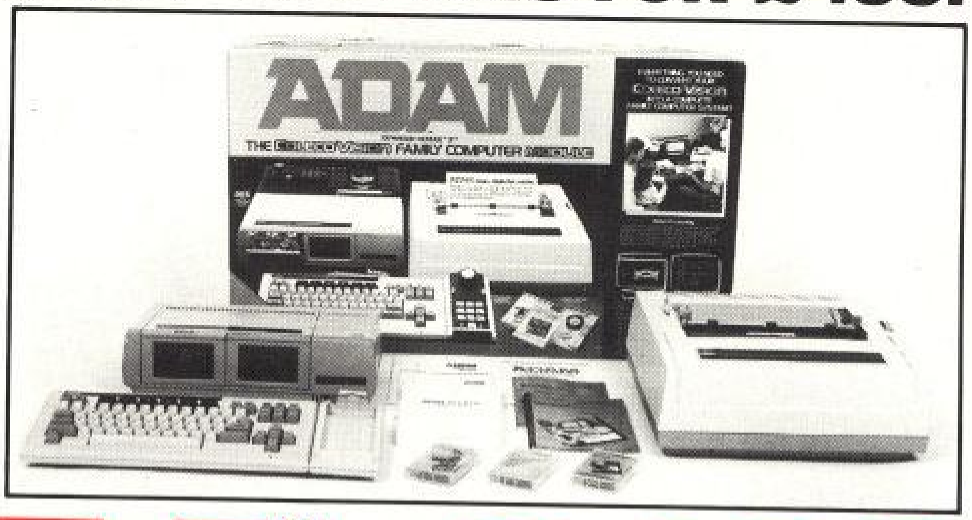
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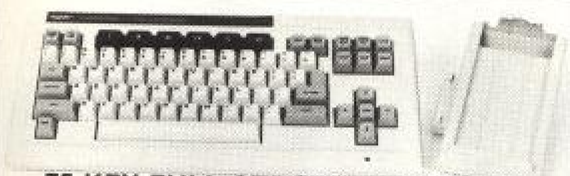
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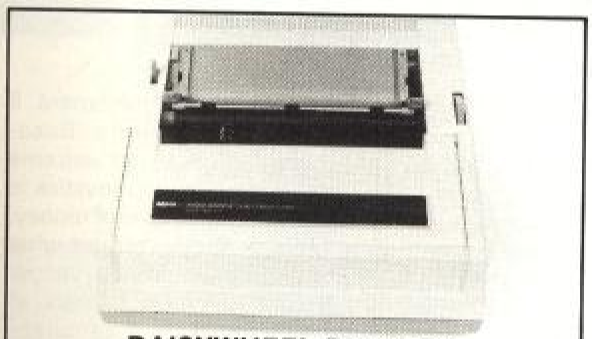
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MEMORY CONSOLE/DATA DRIVE: *The heart of the Adam system is the 40K ROM and 64K RAM memory console which combines with the 32K ROM and 16K RAM in Colecovision to give you a total of 72K ROM (including 24K cartridge ROM) and 80K RAM (expandable to 144K). Built into the memory console is a digital data drive which accepts Adam's digital data packs, a fast and reliable mass storage medium that is capable of storing 256K of information, that's about 250 pages of double spaced text! The console is also designed to accomodate a second optional digital data drive.

FULL STROKE KEYBOARD: The Adam keyboard has been designed as a professional quality keyboard that combines ease of use with an impressive array of features. It is stepped and sculptured for maximum efficiency and has 75 full stroke keys which include 6 colour coded Smart Keys which are redefined for each new application; 10 command keys which are dedicated to the word processing function, and 5 cursor control keys for easy positioning of the cursor at any point on the screen. You can attach a Colecovision controller to the keyboard to function as a numeric keypad for easy data entry. It can also be held like a calculator, a feature which makes working with numbers particularly easy. The joystick part of the hand controller can be used in the same way as the cursor control keys, to move the cursor around the screen.

LETTER QUALITY PRINTER: The SmartWriter letter quality daisywheel printer is a bi-directional 80 column printer which prints at a rate of 120 words per minute. It uses standard interchangeable daisywheels, so a variety of typestyles are available. The printer has a 9.5 inch wide carriage for either single sheets or continuous fan fold paper and uses standard carbon ribbons. It is comparable to many printers which cost as much as the total Adam package. The printer can be used either with the Adam's SmartWriter word processing program or as a stand alone electronic typewriter.

BUILT-IN WORD PROCESSOR: Adam comes with SmartWriter word processing built-in. This program is so easy to use that you only have to turn the power on and the word processor is on line and ready to go. Detailed instruction books are not necessary as the Computer guides you step by step, working from a series of Menu commands. It enables you to type in text, then completely edit or revise it with the touch of a few keys. Changes are readily made and a series of queries from the computer confirm your intentions, so that you can continuously double check your work as you type.

COMPATIBILITY WITH COLECOVISION: By using high speed interactive microprocessors in each of the modules, the Coleco Adam is designed to take additional advantage of both the 32K ROM and 16K RAM memory capability in the Colecovision. If you do not already own a Colecovision Console (£99 inc VAT), then you will need to purchase this when you initially purchase your Adam Computer package (£499 inc VAT), making a total purchase price of (£598 inc VAT).

WHAT IS COLECOVISION: Colecovision is one of the worlds most powerful video game systems, capable of displaying arcade quality colour graphics of incredible quality on a standard Colour TV set. The console (see picture bottom left) accepts 24K ROM cartridges such as Turbo and Zaxxon and is supplied with the popular Donkey Kong cartridge and a pair of joystick controllers. Colecovision has a range of licenced arcade hits available such as: Gorf, Carnival, Cosmic Avenger, Mouse Trap, Ladybug, Venture, Smurf, Pepper II, Space Panic, Looping, Space Fury, Mr Do, Time Pilot, Wizard of Wor and many others. So there you have it, Adam plus Colecovision the unbeatable combination. Send the coupon below for your FREE copy of our 12 page Colour brochure giving details on the complete Adam system.

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LITERATURE REQUEST:

☐ Please send me your FREE 12 page colour brochure on Colecovision/Adam

☐ I own a .... Videogame ☐ I own a .... Computer

Mr/Mrs/Ms: .... Initials: .... Surname: ....

Address: ....

....

....

.... Postcode: ....

ORDER REQUEST:

Please send me: ☐ Adam (add-on package only) .... £499 inc VAT

☐ Adam & Colecovision (£499+£99) ..... £598 inc VAT

☐ I enclose Cheque/P.O. payable to Silica Shop Limited

☐ CREDIT CARD - Please debit my Access/Barclaycard/Visa/Am Ex/Diners Club

Card Number: ....

Rev 2



The WICO range — with the 3-Way top of the list.

STICKS MAY BREAK...

... Or do their bearings in, but nothing fazes JOHN CONQUEST. He's got plenty more to fall back on

LOOK THROUGH the computer mag ads and you'll see that there are a lot of people trying to sell you custom joysticks, all convinced that theirs is the real McCoy. "Arcade action", "instant response", "high quality", "professional" — writing joysticks ads looks like a doddle, but what we're concerned with here is the rather more difficult business of actually buying one.

Obviously the first consideration is compatibility, whether or not the widget will fit your machine. Virtually all the joysticks currently available are designed to fit Atari video & computer systems and Commodores, though they'll also work on CBS's Colecovision videos (you'll still need a standard controller in the second port to make the games run). Wico supply adaptor leads for Apple and Radio Shack marchines and, like Suncom, for Texas Instruments TI 99/4As. A rare exception is Suncom's *Stike Commander* (£16.95), made specifically for the BBC or Dragon, though Kempston are also planning a BBC stick.

VEXED

The vexed question of interfaces is one on which you'll need expert, and hopefully disinterested, advice. For Spectrums, the *Kempston* at £11.50, which will accept any stick, has only one drawback, a single port. For BBc's the *Wizard* at £14.95 is recommended. The basic rules are not to get joysticks with plugs jury-rigged to fit machines they weren't designed for (they don't work too well) and to avoid anything that needs a program to make it run.

A less obvious but vital consideration is the size of your hand. Believe me, that's important. Many of the sticks I tried simply weren't comfortable, but might well suit someone with smaller, or indeed larger, hands and this applies especially to shaped grips.

Unfortunately a lot of shops stock a very limited range, usually Quickshot IIs or Point Masters, so for this and many other reasons it's well worth while going to one of the big computer shops and trying your hand at their range. Lion House in London's Tottenham Court Road, for instance, has 17 models ready to be hooked up for demonstration, and the Silica shop in Sidcup reckons to have at least 15 of a possible 26 in stock at any given time. Even if you just try them for feel, you'll notice the differences.

Ask yourself realistically how much you're going to use a stick. Price differences are almost entirely down to quality of construction and the cheap ones simply aren't up to a lot of punishment. If you're heavily into 'Decathalon', to take an extreme example, a cheap joystick is going to be a waste of money. With joysticks you get what you pay for with a vengeance, and Atari owners at least should calculate whether they're really improving on the standard issue sticks.

OBVIOUS

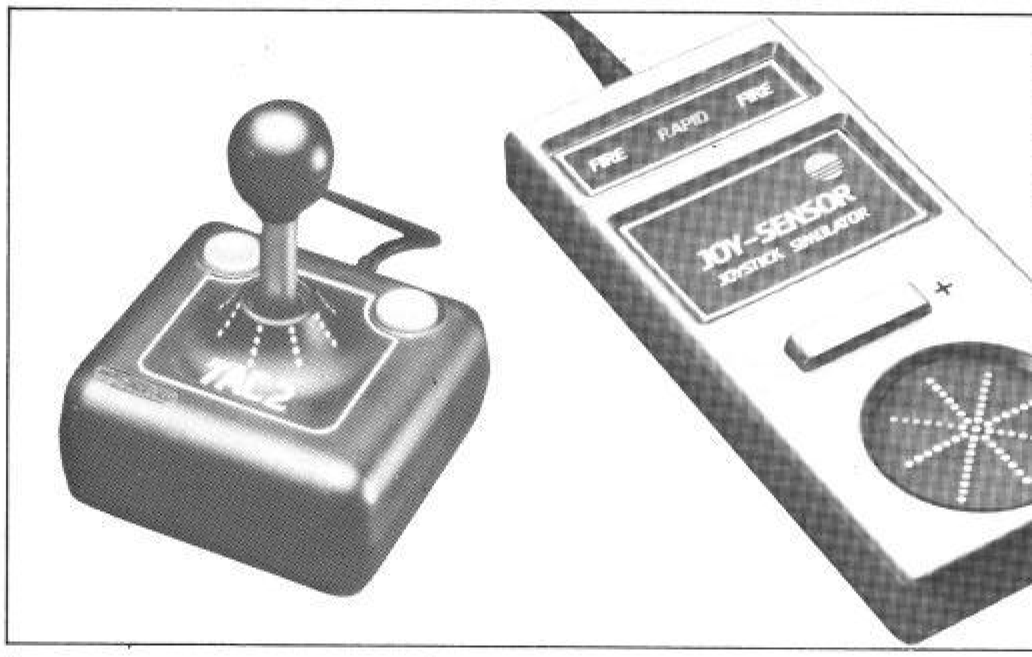
The most obvious differences between cheap and not so cheap sticks are whether or not they have steel shafts, the grade of plastics (high impact or extruded) used and the general solidity of construction. What you don't see is the guts, which is what really sorts them out. Very few sticks have microswitches (though Kempston are rumoured to be using them in all future models), but the leaf switches found in most vary considerably in quality and the cheap ones have very limited lives. Also

hidden inside the casing is the shaft mounting which is another thing that decides whether or not the stick will go on doing what you want it to do.

You should also think about the kind of game you usually play. Sticks come in two basic configurations, with the fire button in the handle, either centre fire on the top or trigger fire in the handle itself, or mounted on the base. I'm convinced that handle fire is a major contribution to fire control. Most of the sticks with handle fire have a base button as well, which can be a nuisance when hand holding, and some base mountings are available in either left or right hand versions or already have both, either as separate buttons or as a bar across the width of the base.

Most of the sticks mentioned were tested with Activision's Atari computer version of *River Raid*. It requires precise manoeuvre, reliable and responsive speed control and pinpoint fire — in other words it uses everything that a joystick ought to offer.

The cheapest sticks around are *Acorn* at £13 a pair (soon to go up to £19), which are so terrible that nobody seems to stock them. The *Pinnacle* at £7.95 is admired more for its price than for the quality of its 8-way movement and handle and base fire buttons, but if you really want to spend the minimum, this is the one.



LEFT: Suncom Slik Stik. RIGHT: the Joy-Sensor vicious oversteer.

For £9.95 you can get Spectravision's *Quickshot I* with centre handle fire and sucker feet, which, for rather more, is a standard Spectrum interface offering. Like its big brother (below) its shaped handle makes hand size critical. Easy to use, though because of the shaft mounting rather loose, it's as fragile as it looks and would last about five minutes in an arcade. Its leaf switches have a poor reputation. Alternatively there's Suncom's *Slik Stik*, the cheapest half way reasonable stick, which has a ball grip, a left hand side base fire button and is a nice hand size. Solidly made, it's the kind of thing Atari ought to be offering as standard.

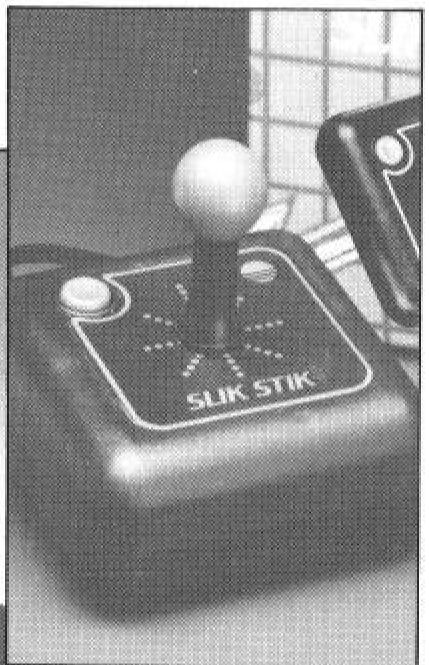
First in over the £10 mark is the very basic *Kempston 1000* (£10.99) which has little over the Slik Stik except a base fire bar, workable from left or right. The handle suggests that it might best be controlled with the thumb. It's followed at £11.95 by the *Quickshot II* which is identical to the junior version already dealt with except that it has 'auto rapid fire' via a trigger in the handle, its main selling point.

LOOSE FEEL

The *Triga Command II* (£12.99) has a very similar loose feel, again due to the shaft mounting, and looks very plasticky. It has a trigger fire only (and suctions cup feet) and comes in £19.99 versions for Spectrum and BBC. The handle design however is excellent with a diamond cross-cut pistol grip that is very satisfying. The much solider *Kempston 3000* with handle centre, trigger and base fire bar buttons is £12.75.

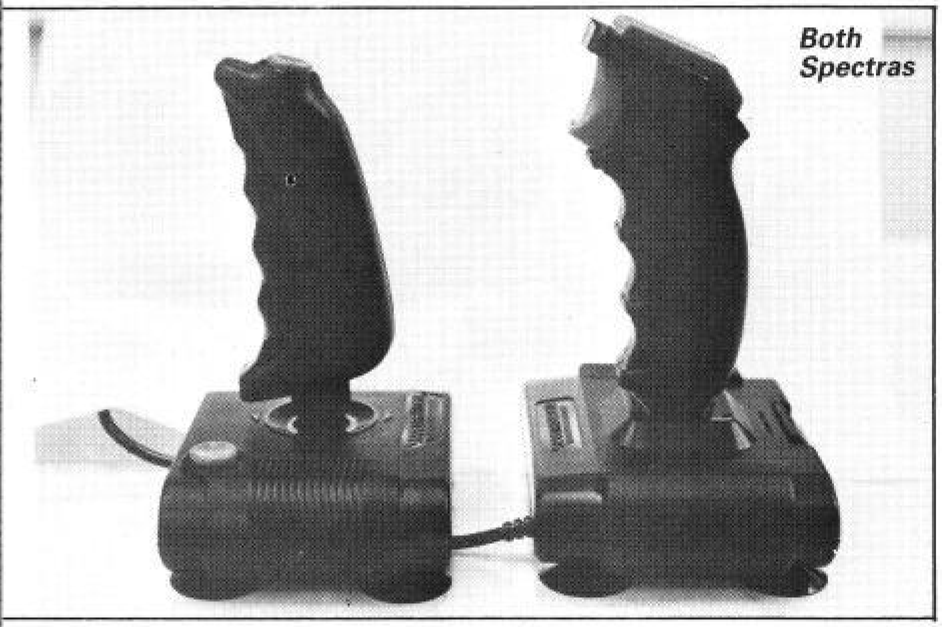
At £12.95 you can choose between the *Point Master*, very similar to the Quickshot II but slightly less robust, and Sumlock's all-British *Pro-Ace* which resembles the Kempstons in its solid high-impact plastic construction and fire bar (plus centre fire in the handle), but which I found sluggish and awkwardly shaped. On the other hand, Sumlock back up the quality of their leaf switches with a two year warranty, so it should be pretty reliable in the long term.

The top of the range *Kempston 5000* (£13.50) is, again, a very solid piece of work with a ball grip on a short, tapered steel shaft and both left and right hand base





ABOVE: the Spectravision 2



Both Spectras

fire buttons. It feels a bit stiff but I'm told that it wears in well. The next Suncom, the £13.95 *Starfighter* (also available in a ritzier version for Apple computers at a very ritzy £39.95) is a very nice hand size with excellent manoeuvre and speed control. It has a left hand base fire button and a stubby unshaped plastic handle that I found far too short, but that's me.

Wico, like Suncom and American firm, make their first entry at £14.95 with *The Boss,* a muscular brute that I found very heavy to use, aggravating my advanced case of video wrist, but very positive. However as the hand grip is shaped for a much smaller hand than mine, it's virtually unusable in my glove size.

The Arcade at £15.95 is the cheapest stick that one can get really enthusiastic about. Dutch made, with very superior microswitches, it's extremely positive and responsive, a real pleasure to use. This is an excellent device and highly recommended — not just by me but by Lion House where it's a big favourite.

STEEL SHAFT

Back to Suncom at £18.95 with the *TAC II* which has a ball handle, steel shaft, non-slip feet and left and right hand side base fire buttons. A nice size for hand holding but, despite the amazing manoeuvre control, I find the shaft too short, the fire buttons need very firm instruction and the game (River Raid) seemed much speedier than with other sticks.

The legendary *Le Stick* at £19.95 boasts unique mercury switches, but they're a mixed blessing. While it's ideal for one-handed use and suits games like *Decathalon* superbly, firing jogs the switches so that it has a tendency to jump about when you

THE PROFESSIONAL



start shooting. Le Stick is if anything too responsive and so hard to control, making it a real wrist killer.

QUALITY

Jumping to £24.95 we have another Wico, the *Red BAll,* a quality number with a longer steel shaft, a good size ball handle with built in fire button, plus another on the base, and all the control one expects from Wico widgets. However at this price I'd spring another £3 to get the £27.95 Wico *Three Way.* This is my personal favourite of all the sticks I tried and, for my money, the top of the range. It has a very long steel shaft, which means a far better 'throw', and three different clip-on handles, though in practice I only use one, the slim tapered job. The Three Way has a centre fire button in the handle and another on the base, but it offers a unique switching feature which enables one to cut off the base button, extremely useful if, like me, you like holding the stick in one hand and working it with the other. With other dual fire sticks it's very easy to find your fingers working both fire buttons, which may not be what you want. For *River Raid* at any rate the Three Way is the primo stick for control, fire accuracy, delicacy of manoeuvre, speed control and overall feel and response.

TOUGH BABY

From the same stable as The Arcade comes the *Professional Mark II* at £28.95, which looks rather like it had been ripped off the front of an arcade machine. This is one tough baby and though I can't help wondering exactly what 'Professional' means in this context, if anything deserves the name this does. I imagine some of you must at stome time have put your noses into a video arcade. If so, you'll know exactly what to expect from this one.

The joker in the joystick pack is Suncom's *Joy Sensor* which looks rather like an up-market version of Intellivision's control pad. I can't make it work and though I've heard rumours of people who have mastered it and love it, I've never actually met one of them. All it gives me is vicious oversteer. At £29.95 this seems like a real gamble, but maybe I'm missing something.

MOVE BLIP

All joysticks do pretty much the same thing, move a little blip round a TV screen. So how come there's a £20+ difference between the cheapest and the most expensive? Well, it depends on whether they're being made to a price or to a standard. I am not a racist . . . but. The tell-tale on the cheap sticks is the 'Made in Taiwan, Hong Kong, South Korea' and there's no getting away from the fact that they're not in the same class as the American and Dutch made sticks.

The trick is to find one that suits both your hand and your pocket, which is why you need access to a wide range. However even the big shops have no consensus view; Lion House are big Wico fans, plugging the price range with the Pinnacle and The Arcade, while Silica Shop prefer the Suncom Slik Stik and Starfighter with the Quickshots as back up. To me the ideal stick would be a cross between the Triga (handle design), The Arcade (micro switches) and Wico Three Way (everything else). In the real world three sticks seem to me to stand out as value for money and they are:

1. **Suncom Slik Stik — £9.95.**
2. **The Arcade — £15.95.**
3. **Wico Three Way — £27.95.**

THE LOT



SEE THE MOVIE — THEN PLAY THE GAME

MOVIES are increasingly finding their way into the world of the micro — and vice versa. Some have taken the arcades by storm, like *Tron* and *Star Wars*. Others run direct to micro — like Palace's *The Evil Dead* and (well, OK) *ET*. In the latter, Atari relied on the mega-popularity of the movie to sell a rushed-out, naff game. It bombed spectacularly. *ET* stands as a case history. Corporate disaster due to the underestimation of games lovers.

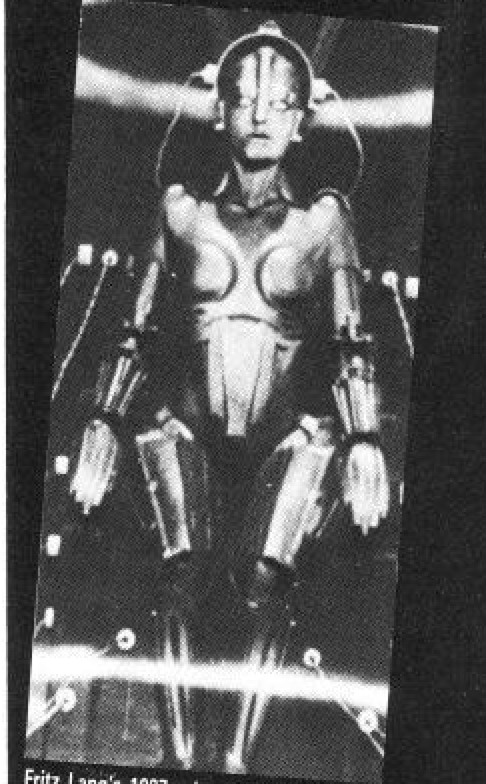
Raiders of the Lost Ark **was translated (also unsuccessfully) into the Atari game of the same name. It also inspired a whole 'genre' of games, like Activision's *Pitfall* and Quicksilva's *Fred*.**

YOU REMEMBER CELLULOID — DON'T YOU?

SEVERAL times in the last three years Major Motion Pictures have generated Major Video Games — *Raiders, E.T., Star Wars,* the James Bond movies . . . not all of which have been unqualified successes. NICKY XIKLUNA armed herself with popcorn and notebook and checked out the autumn crop. Her aim? To spot next year's mega-licence deals before they happen.

★★★★★★★★★★★★★★★★★★★★★★★★★

METROPOLIS



Fritz Lang's 1927 robot. Shades of Star Wars?

IF YOU though that the epic fantasy film was new, here's one that's celebrating its 57th birthday, and still going strong. *Metropolis* is a touchstone lurking behind nearly every scrap of phantasmagoria produced since it was made (in 1927!) Fritz Lang's original monumental vision has had its echoes in *Blade Runner, Lord of the Rings,* and Roger Dean-style artwork. And for my money — it hasn't dated so easily.

Georgio Moroder thinks so too. He bought the film rights. He's coloured it and set it boogfie-ing along to modern music, like Pat Benetar and Adam Ant. A real stunner.



SUPERGIRL

THE 'Super' family are back to save the World again. This time it's Supergirl. *Supergirl's not as grand a movie as its predecessors, perhaps because the action's confined to the small Mid-Western town of Midvale. But the cast is really strong, including Peter Cook, Mia Farrow, Simon Ward, Peter O'Toole and Faye Dunaway as Supergirl's opponent — Selena.*

The power-crazed Selena utters the cry of "Today Midvale — tommorrow the World!" and the battle is ON. Dontcha try it Selena. We know who's going to win. But what fun it is getting there!

GREMLINS

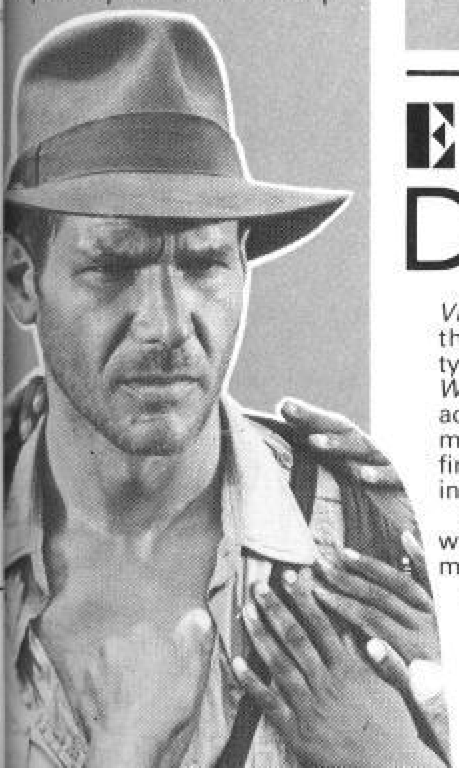
GREMLINS are being kept mysterioso by Spielberg Productions. So no pictures! (The Shad. says that they're a cousin of ET — with teeth). Havoc is wreaked on yet another Mid-Western town, after 'Gismo' — the first and benign Gremlin — is fed hamburgers after midnight.

There's already a Thor game out by the same title — but it's nothing to do with the celluloid version. That one's coming out soon from Atari — who hold the rights to this nice little number.

INDIANA JONES and the TEMPLE OF DOOM™

IT will not have escaped you that *Raiders of the Lost Ark* now has a sequel — *Indiana Jones and the Temple of Doom.* Be prepared for the reverberations that these latest perils of El Archaelologist will surely spread to the games world. Speilberg productions have conspired to ensure that you never get beyond the very edge of your seat. Don't see it if you want to relax. Heroic stuff. I like it better than *Raiders.* Will it make a game? Someone sure as hell will try . . .

A picture of your Indie to cut out and keep.



ELECTRIC DREAMS

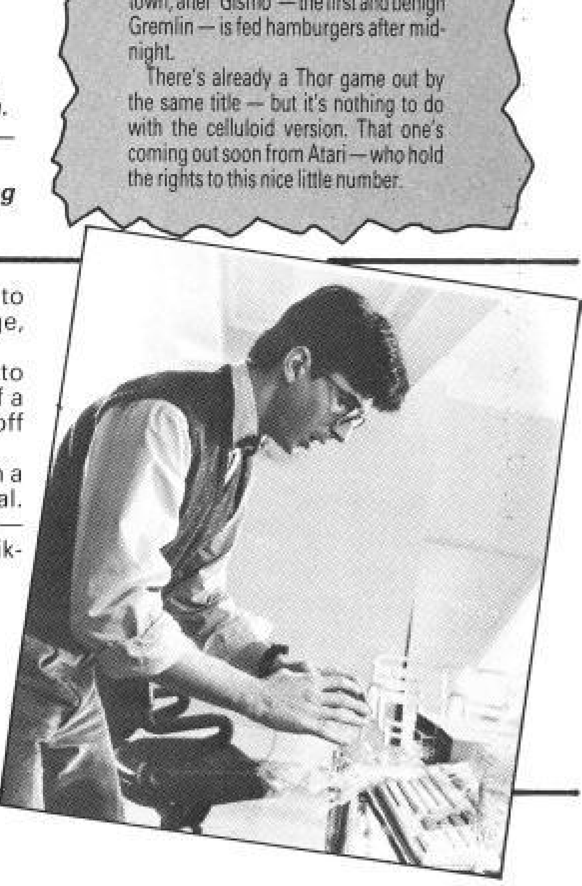
VIRGIN'S Electric Dreams shows that computers haven't been typecast after their film debut in *Wargames.* This microcomputer acquires a few extra million K's of memory and learns to talk. He finally pops all his pixels by falling in LERV.

I don't think that *Electric Dreams* will take shape as a game, but you might be interested in the spectacular computer graphics set to original music by Boy George, Heaven 17 and more.

A special interface was built to base the effects on the ability of a simple micro. Then they took off and got really complicated.

The result is half way between a hi-tech pop-promo and a musical. It's an entertaining night out — especially if you've an innate liking for schmaltz.

Hero Miles will try anything to put his computer in its place — even champagne!



LASER DEFENSE

For ORIC By GRAEME MORRIS

It's raining missiles and the city is about to get more than just wet! You are in a bunker controlling the retaliation. Using the cursor buttons seed the sky with your cross-hairs. Press SPACE to fire the laser bolts that can stop the incoming warheads. If the city is hit more than seven times the radiation build-up will cause an explosion.

You have 12 laser bolts per wave. Your score and hits on the city are totalled up at the end of each wave. If you survive an attack with no hits you can get a bonus of 5000 points. Each wave is faster than the last. If you make it beyond eight waves we'd like to hear about it!

```
10 REM ******************************
12 REM **                          **
14 REM **     LASER DEFENSE        **
16 REM **                          **
18 REM **          FOR             **
20 REM **                          **
22 REM **         BIG  K           **
24 REM **
26 REM ******************************
28 :
45 PRINTCHR$(17),CHR$(20)
50 HIMEM£8700
55 GOSUB2000
60 GOSUB1000
65 CLS:EXPLODE
70 PAPER0:INK6
75 HIRES:POKE618,10:CURSET0,158,0:FILL18
,1,2
80 HTS=0:ATC=0:SC=0:BX=0
85 CLS: PRINT" HITS ON CITY: ";HTS;"
   SCORE: ";SC
90 CURSET10,168,0:FORZ=1TO37:CHAR111,0,1
:CURMOV6,0,0:NEXTZ
95 A$="errsp srprsrp spsssrrsrs psprpss
pspr"
98 CURSET10,180,0:GOSUB1500
99 ATC=ATC+1:V=ATC:D=INT(100/(V+2))
100 CURSET65,182,0:FORZ=1TO12:CALL£FOFO
105 CHAR116,0,1:CURMOV10,0,0:NEXTZ
110 N=0:LS=12:X=120:Y=70:BX=0:H=0
115 FORZ=1TO10:J(Z)=0:NEXTZ
117 FORZ=1TO8
120 OX(Z)=INT(RND(1)*220)+10
125 OY(Z)=INT(RND(1)*180)+35
130 OZ(Z)=INT((OY(Z)-OX(Z))/7)
135 NEXTZ
140 CURSETX,Y,3:CHAR43,0,1:PING
145 R=0:S=0
150 FORZ=1TO8:CURSETOX(Z),0,3:DRAWOZ(Z)
,20,1
155 NEXTZ
160 FORV=1TOD:GOSUB170:NEXTV
165 GOSUB250:GOTO300
170 Z$=KEY$
175 P=X:Q=Y
180 IFZ$=" "THEN225
185 IFZ$=""THENN=9ELSEN=ASC(Z$)
190 IFN=8THENX=X-6:IFX<20THENX=224
195 IFN=9THENX=X+6:IFX>225THENX=21
199 IFN=10THENY=Y+4:IFY>140THENY=140
200 IFN=11THENY=Y-4:IFY<18THENY=18
205 IFTA=0THENCURSETP,Q,3:CHAR43,0,2
210 TA=0:CURSETX,Y,3:CHAR43,0,2
220 RETURN
225 IFLS=0THENPING:RETURN
230 TA=1:LS=LS-1:CURSETLS*10+65,182,0:CH
AR116,0,0
235 B=BT
240 T(B)=X:U(B)=Y
245 CURSETX,Y,3:CHAR43,0,1:RETURN
250 IFB=0THENRETURN
255 FORM=1TOB:FORW=1TO2
260 CURSET120,180,3:DRAWT(M)-120,U(M)-18
0,2
265 NEXTW:NEXT
270 FORD=1TO8STEP-1:FORG=1TO5
275 CIRCLED,0:NEXTG:SHOOT:NEXTD,M
280 CURSETX,Y,3:CHAR43,0,1
285 TA=0:B=0:Z$=KEY$
290 RETURN
300 BX=BX+1:M=BX*20
305 FORZ=1TO8
310 IFJ(Z)=1THEN330
315 RC=OX(Z)+BX*OZ(Z)
320 IFPOINT(RC,M)=0THENJ(Z)=1:H=H+1:GOTO
330
325 CURSETRC,M,3:DRAWOZ(Z),20,1
330 NEXT
335 IFH=8THEN380
340 IFBX<7THEN145
345 FORZ=1TO8
350 IFJ(Z)=1THEN370
355 CURSETOX(Z)+8*OZ(Z),165,1
360 HTS=HTS+1
365 GOSUB500
370 NEXT
380 CURSET0,0,0:FILL160,1,0:CURSET0,0,0:
FILL160,40,64
385 FORG=182TO189:CURSET10,G,0:DRAW200,0
,0
390 NEXT
395 CLS
399 SC=SC+(H*250)+(LS*20)+1000:IFHTS=0TH
ENSC=SC+5000
400 IFATC=1ANDHTS>7THENSC=0
405 PRINT" HITS ON CITY: ";HTS;"
CORE: ";SC
410 IFHTS<7THEN90
415 CURSET120,150,0:EXPLODE
420 FORZ=1TO90:CIRCLEZ,1:NEXTZ
425 FORZ=90TO1STEP-1:CIRCLEZ,0:NEXT
430 CURSET70,65,0:A$="CITY DESTROYED"
435 GOSUB1500
440 CURSET70,80,0:A$="PRESS  E  TO PL
:GOSUB1500
442 CURSET70,95,0:A$="PRESS  E  TO EN
GOSUB1500
445 GETP$:IFP$="p"THENGOTO65
447 IFP$<>"e"THEN445
450 TEXT:CALL£F808:END
500 EXPLODE:FORC=1TO5:CIRCLEC,1:NEXT
505 FORC=5TO1STEP-1:CIRCLEC,0:NEXT
510 RETURN
1000 CLS
```

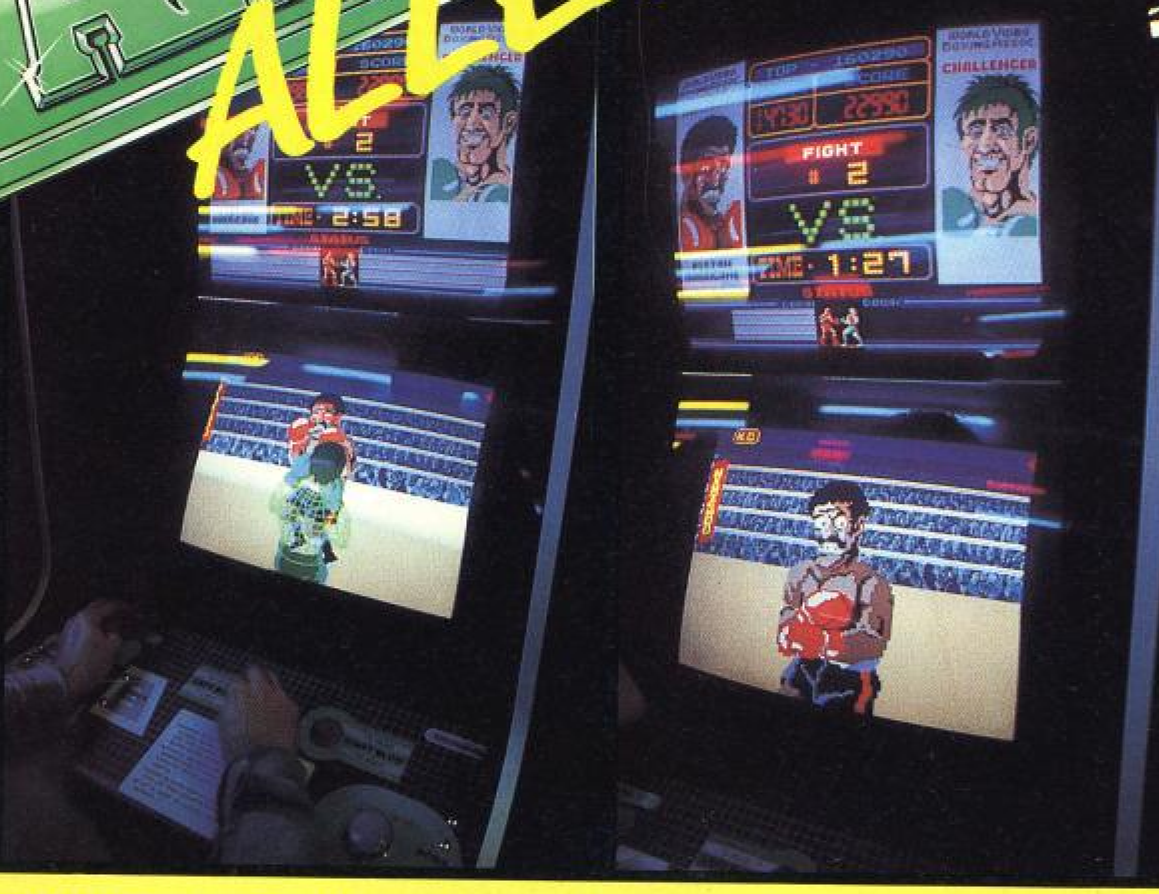
```
1010 A$="...RED ALERT...CITY UNDER ATTAC
K...USE CURSOR TO AIM...SPA
CE TO FIRE"
1020 PLAY1,0,4,500:MUSIC1,3,1,0
1030 DOKE£26B,£010A
1040 CLS
1050 FORZ=1TO102
1060 PLOTO,11,LEFT$(A$,38)
1070 PLOTO,12,LEFT$(A$,38)
1080 A$=MID$(A$,2)+LEFT$(A$,1)
1090 WAIT8:NEXTZ
1100 PLAY0,0,0,0
1110 RETURN
1500 FORZ=1TOLEN(A$)
1510 CHARASC(MID$(A$,Z,1)),0,1
1520 CURMOV6,0,0:NEXTZ
1530 RETURN
2000 ZX=46080
2010 FORV=1TO6
2020 READC:D=8*C
2030 FORQ=0TO7:READF
2040 POKEZX+D+Q,F:NEXT
2050 NEXT
2060 RETURN
3000 DATA111,255,255,255,255,255,255,255
,255
3010 DATA112,0,3,3,3,3,7,7,7
3020 DATA113,96,96,96,96,96,255,255,255
3030 DATA114,0,0,0,0,0,255,255,255
3040 DATA115,96,96,96,96,99,99,99,255
3050 DATA116,8,8,8,8,28,8,20,20
```



ARCADE ALLEY

BIG K

ARE YOU





IF YOU, like me, have trouble fighting for air in most arcades then Nintendo's *Punch Out* could be the work-out you're looking for.

Set in the grime and gore of the boxing ring, *Punch Out* brings you a blow-by-blow encounter with a series of ugly-mug pugilists — all of whom are intent on stopping you as you K.O. your way to the Heavy-weight throne. At each level the going gets harder, as the fights get longer and the fighters get stronger (and bigger and faster and meaner . . !)

The games graphics are ruggedly simplistic with little more than the ropes, the ref and the canvas on show (though the latter is the last thing you want to see!) The atmosphere is heavy and the vox-box grim as it shouts 'Let's keep it clean . . . Now come out BOXING!' Visually you're represented by the ingenious bare-bones (literally) of a 3-D fighter who reacts with the speed of light to your every whim. Capable of nearly every move in the book (bar head-jobs of course) you use a combination of buttons and joy-stick to defend and attack in the finest Marquis of Queensberry tradition.

The joystick enables you to weave your way through the round whilst keeping your guard up or down as the case may be. The buttons offers you the chance of counter-attack with left/right blows to the head or body. And when the time is right you get the chance to take a decisive K.O. blow with either a thundering uppercut or a murderous hook.

The first opponent is a measly wimp of a man called Glass Joe — but even he poses a threat until the right combination of bobbing and boxing is achieved — a matter of juggling thumb and joystick. Every punch thrown is greeted by cheers from the crowd and orders from your corner — 'body-blow, body-blow, jab, jab, UPPERCUT!!' (it can get pretty heavy when you're being egged on like that . . .) Your success, though, depends on the power-meter and the status-meter. The latter indicates (with alarming speed) your/the champ's respective stamina — a good series of punches and you can be on for a winning blow; a drop of guard, a kick right from the Champ and you're out of stamina and on the deck. The former shows your punching power on a gauge which rises steadily as you attack and flashes 'K.O.' when you've got your man on the ropes — miss it and you're back down the scale and in danger of a quick rally by your foe. The drawback unfortunately on both of these is their positioning — if you've got your chin down and your guard up then it's hard to check your situation.

As in a real fight it's all against the bell, with the rounds lengthening as the fights get harder. If you fail to K.O. your man within the bell then you're out — there's no chance of a points decision in this game! Between rounds your next opponents vital statistics (and we're not talking 38-24-36 here) are flashed up (though far too rapidly for my liking) showing nationality, world ranking, weight, etc. and then it's back into the ring.

For far too long ten-stone weaklings like myself have been knocked senseless by great muscle-bound idiots so it's a relief to find *Punch Out* offers a little hope away from the real fisticuffs. In just five sessions (at thirty pence a throw) I had personally floored such brutes as Glass Joe (rated ninth in the world — but just a sucker for my glove) Piston Hurricane and Bald Bull. And I was hardly sweating. Charles Atlas? Rocky? Forget it . . . I was a contender!



OU READY FOR THE BIG *K.O.* ?

'Cos if you're not, stay well clear of Nintendo's *Punch-Out*. DAVID DORRELL sags to the canvas with a streaming nose and a ruptured gut, while a smirking DAVID CORRIER snaps busily away from the comfort of his ringside seat.





PUNCH-OUT's HEAVYWEIGHT HIERARCHY
(in ascending order of pugilistic prowess)

GLASS JOE — French, weedy and rated ninth in the world.

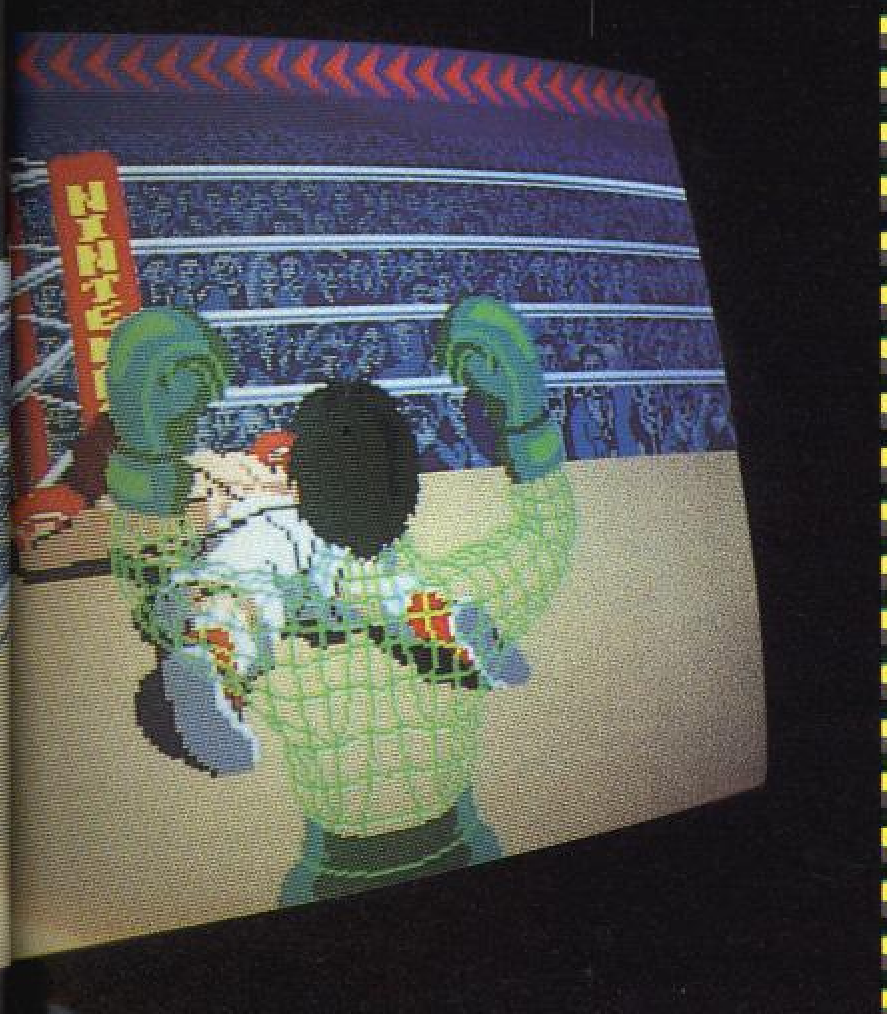
PISTON HURRICANE — Cuban, hard and a bit of a heel, rated eighth in the world.

BALD BULL — as mean as Mr. T and twice as fast, rated seventh.

KID KWIK — American and faster than a McDonalds at getting you down.

PETER PASTA — Italian and smarmy with it — a walking Mafia man.

MR. SAND MAN — World champ, American and guaranteed to put you to sleep but fast.





ARCADE of the FUTURE?

In the USA they're saying that Arcades are deadsville, Dad. Yet at the same time the technology has never seemed more promising. Assuming the genre survives, what will a typical arcade look like in ten years time? TREVOR MENDHAM speculates . . .



EVER SINCE the arrival of the first *Space Invaders* machines just a few short years ago, the quality and realism of arcade games has been improving at an exponential rate. The games we play now would have been inconceivable in those early days. And yet despite this rapid advance I believe that we have not yet come anywhere near the form's ultimate potential. The video game of tomorrow will be as far removed from that of today as *Dragon's Lair* is from, well, *Space Invaders*. For this reason I'd like to speculate on the shape that this ultimate game of tomorrow might take.

In the arcade of tomorrow, you are unlikely actually to see anybody playing a game! Rather, there will be groups of half a dozen or so enclosed 'booths' clustered together, each just large enough to contain one player. Above each set of booths, a master screen will show a sample of the game, along with instructions, details of price and the names of the high scorers.

On finding a game that takes your fancy, you place your money (probably a five pound coin) in the slot of an unoccupied booth and step through the door.

The booth is circular, with the controls mounted on a stick set in the floor which can be adjusted to suit your height. In the more uptown arcades, there may even be a chair for you to sit on during the game — though true video experts are likely to reject this as a distraction. You close the door and press the start button. The booth goes dark, and you enter into another world . . .

Reality

The canvas on which the action takes place is not just a small, flat TV screen, but instead consists of the whole of the wall in front of you! With full 180 degree projection you really feel *part* of the game, rather than just an outside observer. What is more, the pictures are not just computer graphics, but are generated by laser disc technology and are based on real photographic material. When combined with quadrophonic sound, it becomes extremely difficult to remember that it is not real but merely an electronic fantasy.

The scene set — be it a view into deep space or an ancient castle — the game begins as your opponents come into view, strapped into their jetpacks or wearing their suits of armour (as appropriate). Now the reasons for the clusters of booths becomes apparent, for whilst some of the enemy are controlled by the computer, the rest of your opponents are your fellow players! And you have no way of determining which is which! Until, that is, you get close enough to make out their faces. For the 'men' in this game are not just anonymous graphic blobs, but all have faces and features. Those belonging to the computer will have those chosen randomly from a stock of photographs, whilst those controlled by players will use photographs generated by the camera hidden in the wall which is constantly observing you. And of course, just as you can see the faces of the others, so they can see you — and, if you are close enough in game terms, the microphone in your booth will allow you to talk to each other!

Friend or Foe

Of course, if you have recognised one of your opponents as a friend you must then decide whether to work together or whether to kill him for the points. And if you decide on an alliance, are you sure you can trust him . . . ?

Does that scenario have you drooling? Well, as any science fiction reader will tell you, that's just the start — there are many more possibilities, leading up eventually to direct mental stimulation and game control. However, I have deliberately limited my speculations for one very good reason.

It Exists

That is that everything I have mentioned above is possible today. The technology already exists, it is simply a case of bringing it together. We have had the ability to produce the hardware for a long time — it is no more advanced than that of a flight simulator. As for the software, well, there are professional, industrial programmers who are more than capable of handling the complex graphics manipulation required, whilst when it comes to the games side there is a vast pool of talent currently cutting their teeth on the home computers. The game I've described could be in the arcades within two years. All it would need would be an entrepreneur with a awful lot of capital — and even more guts!

Midsummer is never a very good time for computer companies, but this July was disastrous for two state-of-the-art operations — America's Atari and Britain's Imagine Software. Deeply in trouble, short of money and beset by the fruits of several bum decisions, both operations all but closed down in their present form six weeks ago. What went wrong, what are the lessons for others, and can anything be salvaged from the wreckage? TONY TYLER assesses . . .

AFTER THE CRASH

REQUIEM AT SUNNYVALE

Six weeks ago an American businessman named Jack Tramiel put 185 million dollars on the table under the noses of Mr Warner and his Brothers and a few minutes later was walking out of there with a company called Atari metaphorically under his arm. Tramiel had also guaranteed to pick up Atari's debts — valued at three times the cash price-tag. All the same it was a chickenfeed purchase. By selling off the lion's share of Atari, Warners had put a stop to a miserable five years of steady losses and marketplace disappointment. What went wrong?

The answers must be, in no particular order: terrible management decisions; the existence of CBS-Coleco and the existence of Commodore International.

Atari is the company who, more than any other — certainly in the United States — began it all. It has been losing money almost ever since, certainly since founder Nolan Bushnell sold off his Sunnyvale operation to Warner and the Brothers more than five years ago for a multi-million sum. Despite an excellent early hardware design lead, high manufacturing standards, and a second-to-none reputation as a games concern — not to mention a peerless coin-op division that has always been a pioneer (and indeed which Warners have hung on to) — the company's men-in-charge then became confused over and over again. The way in which the US market at first shaped up nicely for the switch from games machines to computers, then changed its mind — then partly changed it back again and got interested in proper computers after all — led Atari's management to make a series of ghastly wrong decisions, blunders that unfortunately cost the company money and credibility at a time when the lead due to the Bushnell years was evaporating rapidly.



ATARISOFT STUFF: a move along the right lines, but it came too late.

In hardware, the company had got off to a good second leg (the VCS being its first) with the 400/800 series, 6502 machines ahead of their time in many ways, with sprites, 256 colours, RAM up to 48K and already-available disc drives and other peripherals. Plus a vast, quality library of software in ROM form (not all of them were VCS upgrades). This range established a good user base in the USA; and as it was considerably better than anything up to Apple II status, dominated the lower-price market. Commodore's elderly PET and low-RAM VIC-20 paled alongside the Atari models. At the same time the company were committed to produce full-time for the seemingly ever-lasting VCS.

The ball was first fumbled 15 months ago, when Apple upgraded the II to the IIe, Commodore introduced the "Vic-64", and at the same time it was becoming clear that Atari would soon have to choose between the videogame and computer camps. There is little doubt that there were voices in the company raised at this time arguing for an all-out computer strategy. Unfortunately there still were (and are) all those VCS owners out there. The company decided to continue pursuing both at the same time. It must have seemed a sane enough strategy then; though in retrospect it seems clear that it served only to over-expand the company and spread its resources still more thinly, at a time when research projects were already promising to take Atari further and further into more exciting and expensive areas than low-

grade domestic computer manufacture. AtariTel — a grandoise networking plan — was hatched (and lingers yet). Widgets like AtariLab, and the usual controller additions — trackball, graphics pad, and so on — proceeded more or less to plan. All these had to take up a share of the overall company resource. And Atari's prices made punters grumble.

The next wave of hardware (Spring, 1983) was dis-



THE 2600 VCS. It made Atari . . .

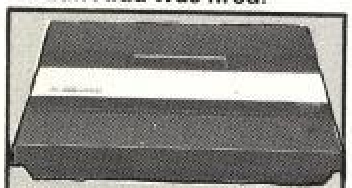
astrous: the 5200 game system in tandem with the 1200XL computer. The 5200 was a re-boxed 400 computer with a widely-disliked joystick (it was never on sale in the UK), distinguished also for near-total incompatibility between it and the 2600VCS, for whose owners' sake the whole project had been laid on in the first place.

The 1200XL was a computer, another machine featuring 100% incompatibility with any other Atari product. In retrospect it emerges as an early prototype for the XL range and should never have been marketed at all. The 1200XL was ditched shortly after launch but the 5200 turkeys on. Now, of course, it has been joined by yet *another* game system, the PRO 7800, compatible (at least) with the VCS. So *that* mistake has, at last, and much too late, been put right. And Atari finally has a product with which to make one last, despairing counterattack against Coleco.

It was when Atari was first reeling away from the initial Coleco thrust into its traditional turf that one began to hear odd stories filtering out of Ca. concerning Atari's desperate plight re: unsold VCS ROMs. As legend unkindly had it, the bulk of these were copies of those very Lucas/Spielberg movies — *Raiders of the Lost Ark* and *E.T.*, particularly, as it happens, *E.T.* — for which Atari had allegedly paid such enormous sums. As Parker have also discovered, good films as spin-offs are lousy compared to good arcade rights (though if *these* should *also* be based on films then you have a different story). *Raiders* was actually a thoughtful game which made much use of the VCS's capabilities; its trouble was it was too difficult. So it, and *E.T.*, simply sat on shelves up and down America until storekeepers refused to take any more Atari cartridges unless the company helped them unload the deadbeats. Eventually 450,000 *E.T.*'s were assembled, driven out to the New Mexico desert in a convoy of twenty-tonners, and then buried — with the aid excavators and earth-movers — in a gigantic hole in the ground not far from White Sands nuclear testing site; all under the silvery light of a Western moon. It's a nice story, anyway.

Coupled with news of disasters real and embroidered came the news that the company had bombed out on the Dow Jones for the second year running. The computer switch seemed to be happening after all, just when Atari has lost its edge, and now Commodore, with its 64 model, was making the running. Legal gripes with Texas Instruments and the software houses Activision and Imagic — the first of a whole series of energy-sapping legal battles — distracted the company. At this time the XL models were only just appearing. AtariTel was getting nowhere, other widgets were more or less on time — but overall Atari wasn't getting enough of the new action to do more than slow down its rate of obvious decline. Staff were cut. Whole departments went, budgets were cut to the bone. Most of the manufacture was shifted to Taiwan and South Korea.

Alan Alda was fired.



. . . But the 5200 nearly broke them.

With hindsight it seems that the company was more or less on course and conceiving the right ideas until the need for a 400/800/VCS general upgrade became obvious. Then the company wasted a whole critical year floundering about with the 1200XL and the doomed 5200, while wasting its diminishing strength trying



The 800XL: a good machine and a good range — but again, it didn't make up for lost ground.

to maintain a presence everywhere else on the computer front. In fact, they are still a year behind — a year they don't have.

Inevitably this year's Dow Jones has been as bad as any in the past three years; and for some months before Tramiel the company had been rumoured to be up for sale.

Similarly the company are unlikely to abandon, after all this time, the 20 million VCS owners. (This of course is a partial argument for the 7800 as well.) Therefore they must keep some software development. This seems to mean a computer software division as well, so those jobs are probably safe too. This in turn supports the idea of continuing the hardware . . . and so it goes on.

One area that must be taken care of is serious applications software. Atari machines have been relatively ill-served in the past in this area, and the computers have suffered in the marketplace as a result. The 64 is no better than the Atari as a games machine, and as a small business micro it only shows up well because of its software. Atari has never had this quality of business support; nor sought it, alas.

Above all the company has got to think international (AtariSoft is a good move) with all its heart — and this means bringing its prices heavily down across the board if it is to compete with Tramiel's old company, now emerging as *the* machine for the first-time buyer. Atari have already all but lost the videogame war with Coleco. Now, to survive at all, they must fight back, either there, or against Commodore in the computer market.

SHOWING NO MERSEY

THEY HAD the highest profile of any British software company, games or not; they had some of the ritziest offices in microdom; they had had a series of high-scoring hits and possessed even higher hopes for the future. Despite this (cynics will say, 'Because of this'), last month the mighty Imagine edifice all but crumbled into ruin, the first and (to date) most notable of Great British Software Disasters.

Putting aside for a moment the thought that the men at Imagine were not exactly top of the popularity stakes (the 'they brought it on themselves' theory, though how this works has yet to be convincingly demonstrated), the



The Imagine 'A' Team: now relegated.

virtual demise of this once-towering operation is bad news for everybody.

It's safe to say that Imagine's problems probably began over a year ago, with over-expansion, overconfidence and a few runaway egos wreaking havoc. The easy returns of the previous year (1983) had convinced many — not just Imagine — that this business is replete with easy pickings. Add to that the pronounced showbiz mentality in games software writing, and you have a situation where several seriously wrong decisions can be taken with the utmost of ease.

It now seems clear that the first major problem was an old favourite: overstocking coupled with a need for liquidity. Translated, that means duplicating too many copies of new games (and perennials), basing sales forecasts on a mixture of gung-ho optimism and overconfidence generated by previous, easy, high turnover.

The second major problem grew out of the first. As is now well-known (but was heavily denied at the time), just before last Christmas Imagine were secretly approached by the publishers Marshall Cavendish, famous for their 'part-works'. MC wanted to produce the ultimate how-to computer p/w — you guessed it, to be called INPUT — and as an incentive to buyers, they wanted to attach, to the cover of each issue, a freebie computer game or piece of instructional and entertaining software. Imagine tendered for the job and were given the contract.

What went wrong? There's no doubt that the in-house expertise of the company was, and remains, fully sufficient to the task. It seems (here Unkind Legend once again takes over) that Imagine spent the advance of several hundred thousand pounds (not £5 million as rumoured at the time) on motorbikes and the pop-star-style fast living . . . and woke up one morning to an acute case of deadline-itis. Here overconfidence again took over (it's said), and a load of substandard stuff was churned out very fast, and given to MC.

However by this time MC had a very shrewd idea of the state of the art and what they knew told them that the contracted-for games were simply not up to scratch. They rejected them outright — which left Imagine in the position fo having to repay the advance (around a quarter of a million). And INPUT went on sale without anything attached to the cover at all.

For Imagine, repayment proved so difficult that within a day or so their problems (exacerbated by poor security — see below) had become common knowledge. It now seems clear that an emergency aid package, possibly from a merchant bank, came up with the cash, short-term, but (like the IMF giving money to Mexico) imposed so many swingeing conditions concerning repayment and interest that if anything the company's real position grew actually worse.

The directors — Dave Lawson, Mark Butler, Bruce Everiss and Ian Hetherington (plus one other mystery backer, so far un-named) — appear to have banked all on a recovery plan based on the following three stages.

(1) Raise as much cash as possible on the sale of back-catalogue titles.

(2) Trim the overheads to the bone.

(3) Re-make the catalogue around the vaunted and much-hyped 'megagames' *Psclapse* and *Bandersnatch*.

(4) Take it from there.

(1) was partially implemented, not without major difficulty, later than had been hoped, and for a far lower figure than can have been wished (to a company called Beau Jolly, reportedly for less than £1.00 per copy). Incidentally, it is widely thought that Imagine's half-assed attempt to lower their prices across the board (to £1.95 from £6.95) at this time (shortly afterwards aborted, for reasons that were never very convincing) was an attempt to achieve (1). Alas, a move that, six months before, would certainly have rescued them, came too late . . .

The reduction of overheads was relatively easy, considering the high profile, the six Liverpool offices, the abundance of staff and the high living. In fact, it turns out that not all of the famous and expensive motor cars actually belong to the company and therefore count as capital assets. Many of the cars are leased . . .

Meanwhile, the main Sir Thomas Street office was closed, as were a couple of warehouses. Staff were laid off — especially bad news in Liverpool.

As for (3) the 'megagames', these remain an asset (and are duly being fought over by the survivors). It seems that by a combination of turbo-loading techniques and extra (dongled) hardware, the company were — are — on the verge of a new class of game altogether. Even so, as others are discovering (Hi, Ultimate!) the extra development time demanded by extra-good games costs money . . . cash the comany no longer had.

The can of worms first opened up by the Marshall Cavendish fiasco reached ugly fruition two months ago with a sudden, new crop of rumours concerning the company. It was said that one (or maybee two) of the directors had done a runner to the USA with a bag of money. Fist-fights were hinted at . . . Actually, it now seems as if Dave Lawson, the slight and quietly-spoken founder-figure/chief programmer, and Ian Hetherington, the bulky former finance director of Imagine *were* in California last month: to *raise* money! It also seems as if they weren't too successful, since the rumour's final form now has Lawson and Hetherington forming an entirely new company called FinchSpeed (assets: the megagames; the company cars), while Mark Butler, already immobilsed by a bike crash, has reportedly been relegated to a second-row forward's slot in the new outfit (against his will). Meanwhile Bruce Everiss, former Operations Director, has departed altogether for pastures new . . .

Finally, it was reported a few days before time of writing that the rump of Imagine has recently sold off 111,000 back tapes (presuambly ones that Beau Jolly didn't want) at (wait for it) 30p per copy! And a sinister note has been struck by the reported "interest" (absolutely nothing more as yet) taken by the Merseyside Police in Imagine's affairs, especially involving non-payment to creditors.

The easiest thing to say is that it was all inevitable. The combination of easy money, youthful self-confidence and more than a hint of megalomania, led to the Biblical result: unmitigated disaster. This would be easier to swallow if it invariably happened. It doesn't. A great many pop stars are living, walking proof that ego, too much cash and big-headedness do not necessarily lead to ignominious downfall.

The truth is that Imagine, for all their unfavourable image, were caught out, like others before them, by a combination of one or two bad decisions, a change in market trends and a continual lack of ready cash. They also believed in themselves to a point where it became quite easy to ignore mounting evidence to the contrary . . . So have a snide laugh if you like, but don't laugh too hard, or you may not see something similar creeping up on you. Nobody is immune from failure.

What now? Lawson remains an excellent games, designer, the megagames are probably very good — and that's all one can safely say at this stage. Start Againsville in fact. But perhaps the shock of the whole event may force realism on to the survivors: we may well hear more of FinchSpeed.

Let's hope so. For despite all the hokum the disinformation and the bragging, there was always plenty of talent there.

Dave Lawson (right): still hanging in with FinchSpeed — or trying to. Mark Butler (left) now finds his position more uncertain than most. Back to Bug Byte?



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40 Z$=" ":FORI=1TO39:Z$=Z$+" ":NEXT
50 B$="":FORI=1TO40:B$=B$+"":NEXT
60 N=0:K=1184:P1=0:A1=0:TR=1
70 DEFFNA(X)=INT(X*RND(1))
80 DEFFNB(X)=INT((8-9*RND(1))/7)
100 PRINT""TAB(16)"* GOLF *"
110 PRINT"WELCOME TO THE LINKS! THIS";
115 PRINT" IS AN 18-HOLE COURSE OF PRO";
120 PRINT"FESSIONAL STANDARDS"
125 PRINT"COURSE RECORD IS 2 UNDER ,"
126 PRINT"SO PLEASE REPLACE DIVOTS AND SHOW"
135 PRINT"COURTESY TO YOUR FELLOW GOLFERS.
145 PRINT"HAVE A GOOD ROUND SEE YOU AT THE
19TH!!" 150 PRINT"WHAT IS YOUR HANDICAP"
160 INPUTH:IFH>0ANDH<30THEN190
170 PRINT"PGA RULES HANDICAP 0-30":GOTO150
190 PRINT"DIFFICULTIES AT GOLF
200 PRINT"1.HOOKING
210 PRINT"2.SLICING
220 PRINT"3.POOR DISTANCE
230 PRINT"4.TRAP SHOTS
240 PRINT"5.PUTTING
250 INPUT"YOUR WORST";F:F=INT(F)
260 H=INT(H):IFF>0ANDF<6THEN290
270 PRINT"DON'T BE SHY":GOTO 250
290 PRINT"SELECTION OF CLUBS
300 PRINT"YARDAGE          CLUBS       NO.
310 PRINT"280-200        1-4 WOODS     1-4
320 PRINT"200-100        1-5 IRONS   11-15
330 PRINT"100- 0         6-9 IRONS   16-19
340 PRINT"TO FADE OR DRAW THE BALL";
350 PRINT"TYPE F OR D WHEN   ASKED"
360 PRINT"TO HIT STRAIGHT TYPE RETURN
370 PRINT"*** WARNING ***
380 PRINT"DON'T HIT IT TOO HARD
390 GOSUB9000:GOSUB1700:GOSUB9000
400 REM GENERATE HOLE
410 Z=K:G=102:N=N+1:READD,P:PRINT"
420 FORI=1TO18:PRINTB$;:NEXT
430 PRINT"HOLE";N,:S=4:A=0
440 PRINT"DISTANCE";D;"YDS ";"PAR";P
450 T=K+280:E=1:FORI=1TO40:FORJ=1TOS
460 POKET+CL,0:POKET,160:POKET+CL,5:T=T+40*E:
NEXTJ:T=T-40*E  470 U=FNB(1):S=S+U
480 IFS<4ORS>8THENS=S-U:GOTO470
490 T=T+1+40*FNB(1):E=-E:NEXTI
500 S=3:T=T+79:FORI=1TO5:FORJ=1TOS
510 O=224:IFI=3ANDJ=2THENO=43:Q=T
520 POKET,O:POKET+CL,13:IFO=43THENPOKET+CL,6
525 T=T+40*E:NEXTJ:T=T-40*E
530 U=FNB(1):S=S+U
540 IFS<3THENS=S-U:GOTO530
550 T=T-1+40*FNB(1):E=-E:NEXTI:O=69
555 FORI=1TO8+FNA(8)
560 S=K+O+FNA(9)+40*FNA(15)
570 IFPEEK(S)=160THENPOKES,87:POKES+54272,7
580 NEXT:IFO=69THENO=55:GOTO555
590 POKEK+360,148:POKEK+360+CL,2
600 X=0:Y=19:V=75:W=(Q-K-37)/20:L=1
605 IFD>450ANDD<550THEN1200
610 IFRND(1)>.6THEN1100
620 PRINT"
640 GOSUB2000
650 PRINT"WHICH CLUB DO YOU CHOSE";
660 INPUTC:C=INT(C)
670 IF(C>0ANDC<5)OR(C>10ANDC<20)THEN700
680 PRINT"NO SUCH CLUB IN THE BAG":GOSUB2500
690 GOTO640
700 QQ=0:IFC<15THENB=100:GOTO1500
705 PRINT"
706 PRINT"
710 INPUT"%AGE (0-100)";B
740 IFB>0ANDB<=100THEN760
750 PRINT"I DID SAY 0-100!WELL";:GOTO710
760 B=B/100:IFF=3THENB=B*.85
770 IFL=2THENB=B*AA:IFC<3THENB=B*.7
790 GOSUB2500:REM DISTANCE
800 M=309-FNA(12)-(H+30)*.7-C*8.3
810 M=INT((B*M*75/D)+.5):Q=0
820 A=A+1:PRINT"";CHR$(A+48)
```



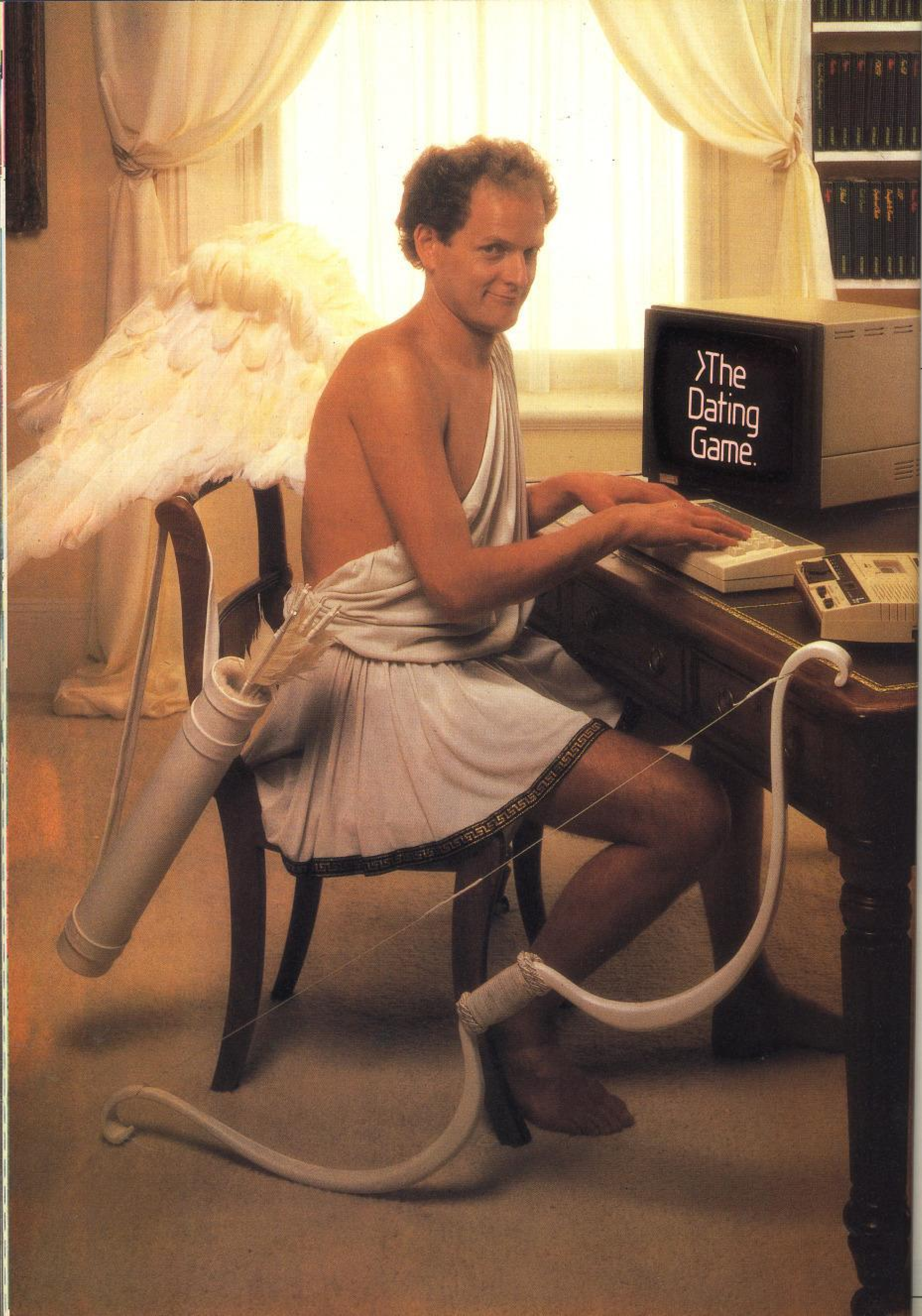


OPEN

by JON BULL

```
830 IFRND(1)>.3+H/90THEN880
840 Q=(H+30)*(RND(1)+.1)*π/500
850 IFF>2THENU=.5:GOTO870
860 Q=Q*1.5:U=.9:IFF=2THENU=.1
870 IFRND(1)>UTHENQ=-Q
880 IFV=XTHENT=π/2:X=X-SGN(Y-W):GOTO890
885 T=ATN((Y-W)/(V-X))+Q-QQ
890 U=X+SGN(V-X)*INT(M*COS(T)+.5)*TR
900 Y=Y-SGN(V-X)*INT(M*SIN(T)+.5):X=U
905 TR=1
910 IFX>79ORY<0ORY>35THEN1300
920 S=K+INT(X/2)+40*INT(Y/2):T=PEEK(S):JB1=S:JB5=PEEK(S+CL) 930 U=126:IF(YAND1)=1THENU=123
940 IF((XAND1)=1AND(YAND1)=1)THENU=108
950 IF((XAND1)=1AND(YAND1)=0)THENU=124
960 POKEZ,G:POKEZ+CL,JB5:POKES,U:G=T:JB5=PEEK(S+CL):Z=S:POKES+CL,0
970 FORI=1TO9:POKES,G:FORJ=1TO99:NEXTJ
980 POKES,U:FORJ=1TO99:NEXTJ:NEXTI
1000 GOSUB2500:IFX=VANDY=WTHEN1600
1010 IFG=224ORG=43THEN6000
1020 IFG=102THENL=2:GOTO7000
1030 IFG=87THEN7500
1040 IFG=193THENL=4:GOTO8000
1050 IFG=174THEN8500
1060 L=1:GOTO640
1100 U=K+103+FNA(11):T=1:FORI=0TO4
1110 JB=PEEK(40*I+U):IFJB=32ANDPEEK(JB+54272)=5THENU=U+480:T=-1:GOTO1130
1120 NEXT
1130 FORI=1TO12:JB2=U+T*40*FNA(5)-FNA(8):POKEJB2,65:POKEJB2+54272,9:NEXT:GOTO62
1200 C=K+12+FNA(8):U=1
1210 IFRND(8)<.5THENC=C+13:U=-1
1270 FORI=1TO18
1280 POKEC,174:POKEC+54272,6:IFRND(1)>.4THENC=C+U 1290 C=C+40:NEXT:GOTO620:REM WATER
1300 IFX>90THEN1360:REM O.O.B
1320 IFX>79 THENX=79
1330 IFY>0ANDY<36THEN1410
1340 IFY>35ANDY<48THENY=35:GOTO1410
1350 IFY<0ANDY>-11THENY=0:GOTO1410
1360 GOSUB2000
1370 PRINT"■TOO MUCH CLUB-LOST BALL"
1380 PRINT"PENALTY■6 STROKES■■":A=A+6
1390 GOSUB2500
1400 PRINT"■":GOTO6490
1410 GOSUB2000
1420 PRINT"■OUT OF BOUNDS-DROP BALL"
1430 PRINT"PENALTY ■1 STOKE■■":A=A+1
1440 GOTO920
1500 PRINT"FADE OR DRAW?"
1510 INPUT"■■■■■■";A$
1520 IFA$="F"THENQQ=.15
1530 IFA$="D"THENQQ=-.15
1540 GOTO760
1600 PRINT"■ YOU HOLED OUT  !!!!■■"
1610 PRINT" LUCKY!!":GOTO6400
1700 PRINT"■NOTATION USED
1710 PRINT"_____________■■
1720 PRINT"■■■=ROUGH■
1730 PRINT"■O■=TRAPS(KEEP OUT!)■
1740 PRINT" =FAIRWAY■
1750 PRINT"■■ ■■=GREEN■
1760 PRINT"■+■=THE HOLE■
1770 PRINT"■T■=THE TEE(OF COURSE!)■
1780 PRINT"■■.■■=WATER(LOST BALL!)■
1790 PRINT"■■■=TREES■":RETURN
2000 PRINT"■";Z$;:PRINTZ$;:PRINTZ$;
2010 PRINT"■";:RETURN
2500 FORI=1TO2000:NEXT:RETURN
6000 PRINT"■ON THE GREEN IN";A
6010 IFRND(1)>.6THENJA=1:GOTO6060
6020 IFRND(2)>.5THENJA=1.27:GOTO6040
6030 PRINT"■■■■"TAB(15)"■SLOW GREEN":JA=.73:GOTO6060 6040 PRINT"■■■■"TAB(15)"■FAST GREEN"
6060 KK=K+320:M=1:T=1:IFF=5THENM=3
6070 GOSUB2500:GOSUB2000
6080 FORI=40TO79:POKEKK+I,99:POKEKK+I+54272,6:NEXT
6310 GOSUB2500:GOSUB2000:GOTO6140
6090 POKEKK-11,160:POKEKK-11+CL,10:POKEKK-10,160:POKEKK-10+CL,10
6100 D=INT(D*SQR((X-V)↑2+(Y-W)↑2)/31)
6110 IFD>58THEND=56+FNA(3)
6120 JB4=KK+29-INT(D/2):POKEJB4,81:POKEJB4+CL,0 6140 PRINT"■YOU ARE";D;"FEET FROM THE PIN"
6130 INPUT"PUTTING STRENGTH (0-13)   ■■■";C
6150 IFC>0ANDC<=13THENA=A+1:GOTO6240
6200 E=C*(4+M*RND(1))-2.5+(RND(1)*(H+30)/40)*M:E=INT(E*JA):M=M*.8
6240 FORI=1TOE:D=D-1:S=INT(KK+29-D*T/2)
6250 FORJ=1TOI:NEXTJ
6260 POKES,81:POKES-T,32:POKES+CL,0
6270 IFS<>KK+29THENPOKEKK+29,93
6280 NEXTI:REM **MIGHT RUN OFF GREEN
6290 IFD<0THENT=-T:D=-D
6300 IFS=KK+29THENFORI=1TO99:NEXT:POKES,93:GOTO6400 6400 GOSUB2500:REM PUTTING
6305 PRINT"■YOU'RE DOWN IN";A;
6410 ON(A-P+3)GOTO6460,6450,6440,6490,6490
6420 PRINT"-KEEP YOUR HEAD DOWN":GOTO6500
6430 PRINT"A PAR, NICE GOING":GOTO6500
6440 PRINT"-A BIRDIE:WELL PLAYED!":GOTO6500
6450 PRINT"-A GREAT BIG EAGLE!!!":GOTO6500
6460 IFP=3THEN6480
6470 PRINT"-A GREAT BIG EAGLE!!!"
6480 PRINT" A HOLE IN ONE!!!!!!!"
6490 PRINT
6500 P1=P1+P:A1=A1+A:IFP1=A1THEN6550
6510 A$="UNDER":IFA1>P1THENA$="OVER"
6520 PRINT"■■YOU ARE";ABS(P1-A1);
6530 PRINTA$;"PAR AFTER";N;"HOLES
6540 GOTO6560
6550 PRINT"■■ LEVEL PAR AFTER";N;"HOLES
6560 PRINT"■■■■";:GOSUB9000
6570 IFN<18THEN400
6580 REM E.O.G
6590 PRINT"■ ***GAME OVER***■■■
6600 ONINT((A1-P1)/5+2)GOTO6730,6700,6660
6610 PRINT"YOU'VE HACKED YOUR WAY";
6620 PRINT"ROUND BADLY.BEST TAKE";
6630 PRINT"SOME LESSONS BEFORE YOU";
6640 PRINT"DIG UP THIS COURSE AGAIN
6650 GOTO6900
6660 PRINT"AN AVERAGE ROUND-YOU";
6670 PRINT"SHOULD IMPROVE NEXT TIME■
6680 PRINT"SEE THE CLUB PRO FOR A";
6690 PRINT"FEW TIPS":GOTO6900
6700 PRINT"CONGRATULATIONS!YOU P";
6710 PRINT"LAYED A GOOD ROUND I LI";
6720 PRINT"KE YOUR STYLE":GOTO6900
6730 PRINT"AN UNDER PAR ROUND!!
6740 PRINT"NEXT TIME YOU PLAY TRY";
6750 PRINT"A HIGHER HANDICAP
6900 END:REM**PHEW!!**
7000 REM ROUGH
7010 GOSUB2000:IFABS(Y-17)>10THEN7030
7020 AA=.75:PRINT"IN LIGHT ROUGH":GOTO7040
7030 AA=.5:PRINT"YOU ARE IN HEAVY ROUGH
7040 GOSUB2500:GOTO640
7500 GOSUB2000:REM TRAP
7520 PRINT"**BUNKERED**":GOSUB2500
7530 GOSUB2000
7540 INPUT"WHICH CLUB";C:C=INT(C)
7550 IFC>11ANDC<20THEN7590
7560 PRINT"YOU WON'T GET OUT WITH";
7570 PRINT"THAT":GOSUB2500
7580 GOSUB2000:GOTO7540
7590 INPUT"% AGE SWING";B
7610 M=68+FNA(17)-(19-C)*5-(100-B)*.4
7620 IFF=4THENM=M*.7
7625 IFRND(1)<.4THENM=M/3
7630 IFM>25THENQQ=0:B=1:GOTO810
7635 GOSUB2000
7640 PRINT"YOU FLUFFED IT":GOSUB2500
7650 A=A+1:GOTO7500
8000 REM TREES
8010 GOSUB2000:PRINT"IN THE TREES
8020 PRINT"YOU CAN ONLY HACK OUT SIDEWAYS
8030 TR=0:GOSUB2500:GOTO640
8500 REM WATER
8510 GOSUB2000:PRINT"■ ** SPLASH !!! **
8520 PRINT"IN THE STREAM-LOST BALL■
8530 GOSUB2500:GOSUB2000:GOTO1380
9000 PRINT"■PRESS ANY KEY TO CONTINUE
9500 GETA$:IFA$=""THEN9500
9600 RETURN
9900 DATA367,4,445,4,314,4,189,3,520,5
9910 DATA331,4,468,4,375,4,177,3,424,4
9920 DATA562,5,336,4,208,3,447,4,298,4
9930 DATA542,5,385,4,478,4
READY.
```



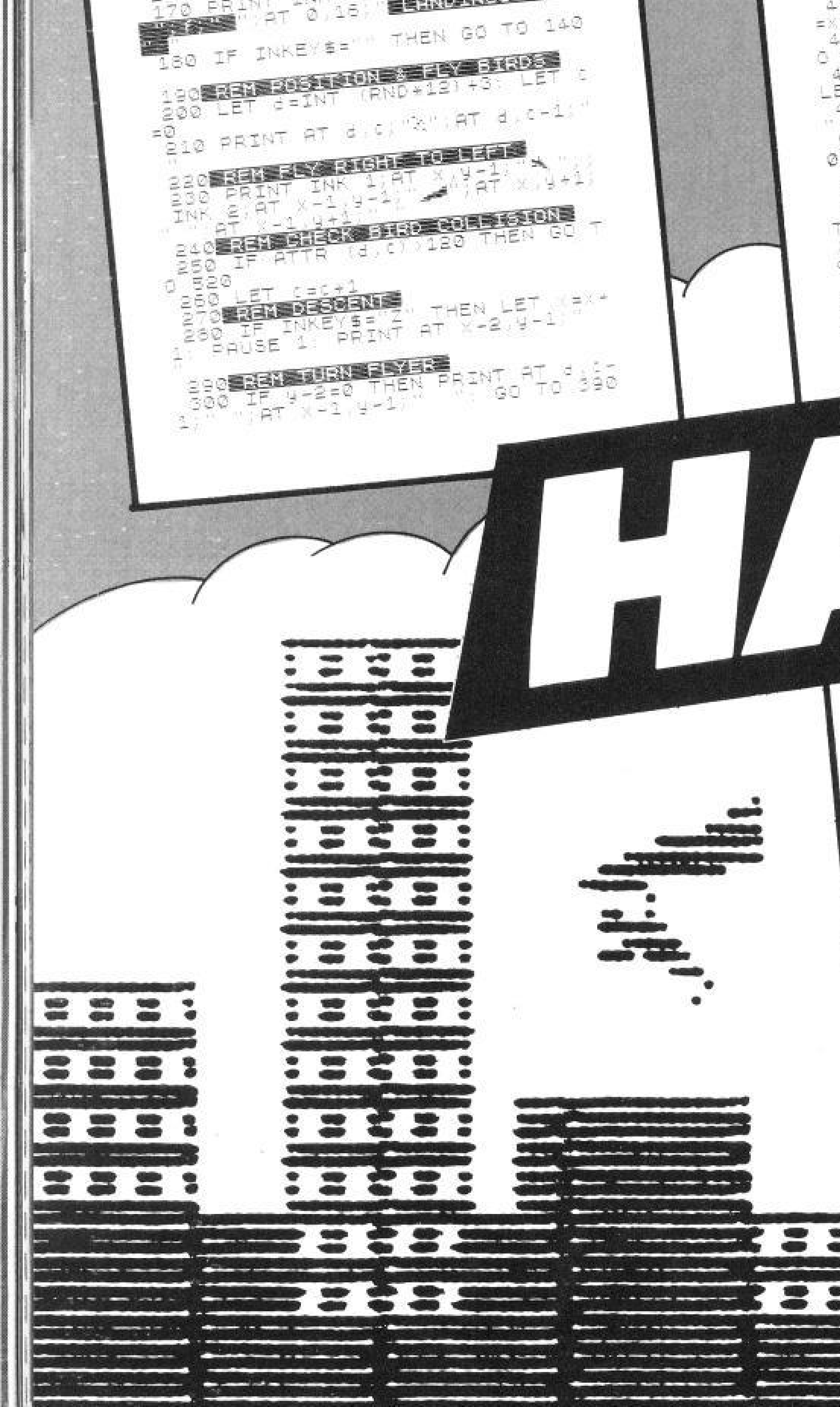


>The
Dating
Game.

```
5 REM
HANG GLIDER © Ron Ridge 1981
10 GO SUB 860
20 POKE 23658,8
30 BRIGHT 1: BORDER 7: PAPER 7:
INK 0: CLS
10
50 GO TO 830
60 CLS
70 LET f=0: LET l=0
80 LET f=f+1
90 REM SET UP SCREEN
100 FOR g=0 TO 31: PRINT INK 1;
BRIGHT 1;AT 21,g;"▀": NEXT g
110 PRINT AT 21,19; PAPER 4;" "
120 PRINT INK 3;AT 20,0;"    ";AT 19,0;"  ";AT 18,11;"+";AT
AT 18,0;"  ";AT 16,3;" ";AT 15,0;
17,3;" ";AT 16,3;" ";AT 15,3;"
 "
130 PRINT INK 3;AT 20,28;"    ";A
;AT 19,29;"   ";AT 18,31;" "
T 17,29;"  "
140 LET x=2: LET y=30
150 PRINT INK 3;AT x+1,y;" ": INK
160 PRINT INK 1;AT x,y;" ";AT x-1,y+1;" "
2;AT x-1,y;" ";AT 0,3;" FLIGHT
170 PRINT INK 1;AT 0,16;" LANDINGS ";l;
" f "
180 IF INKEY$="" THEN GO TO 140
190 REM POSITION & FLY BIRDS
200 LET d=INT (RND*12)+3: LET c
=0
210 PRINT AT d,c;"%";AT d,c-1;"
"
220 REM FLY RIGHT TO LEFT
230 PRINT INK 1;AT x,y-1;" ";AT x,y+1;
INK 2;AT x-1,y-1;" ";AT x,y+1;
" ";AT x-1,y+1;
240 REM CHECK BIRD COLLISION
250 IF ATTR (d,c)>120 THEN GO T
O 520
260 LET c=c+1
270 REM DESCENT
280 IF INKEY$="Z" THEN LET x=x+
1: PAUSE 1: PRINT AT x-2,y-1;"
290 REM TURN FLYER
300 IF y-2=0 THEN PRINT AT d,c-
1;" ";AT x-1,y-1;" ": GO TO 390
```

```
310 REM CHECK FOR LANDING
320 IF x=21 AND y=19 THEN GO TO
680
330 IF x=21 AND y<>19 THEN GO T
O 620
340 REM CHECK BUILDING HIT
350 IF ATTR (x,y-2)=123 THEN GO
TO 650
360 IF c=30 THEN PRINT AT d,c;"
": GO TO 390
370 LET y=y-1: PAUSE 1: GO TO 2
10
380 REM FLY LEFT TO RIGHT
390 LET d=INT (RND*12)+3: LET c
=30
400 PRINT AT d,c;"%";AT d,c+1;"
"
410 PRINT INK 2;AT x,y;" ";AT
x,y-1;" ": INK 1;AT x+1,y;" ";A
T x+1,y-1;
420 IF ATTR (d,c)>120 THEN GO T
O 560
430 LET c=c-1
440 IF INKEY$="Z" THEN PRINT AT
x,y;" ": LET x=x+1
450 IF y=28 THEN LET x=x+2: PRI
NT AT x-2,y;" ";AT d,c+1;" ":
GO TO 200
460 IF x=20 AND y=19 THEN LET x
=x+1: GO TO 680
470 IF x=20 AND y<>19 THEN GO T
O 620
480 IF ATTR (x+1,y+2)=123 THEN
LET y=y+3: GO TO 660
490 IF c=1 THEN PRINT AT d,c;"
": GO TO 200
500 LET y=y+1: PAUSE 1: GO TO 4
00
510 REM BIRD COLLISION
520 FOR e=d TO 19
530 PRINT INK 2;AT d,c-1;" ";A
T d+1,c-1; INK 1;" ";AT d-1,c-1
;" ": PAUSE 2: BEEP .01,e: LET
d=d+1: BEEP .1,e
540 IF d=20 THEN LET c=c-2: PRI
NT AT d-1,c+1;" ";AT d,c+2;" "
AT d,c+1; FLASH 1; PAPER 6; INK
2;"*": GO TO 600
```

HANG



```
550 NEXT e
560 FOR e=d TO 19
570 PRINT INK 2;AT d-1,c;" ";A
T d,c; INK 1;" ";AT d-2,c;" "
: PAUSE 2: BEEP .01,e: LET d=d+1
: BEEP .1,e
580 IF d=20 THEN PRINT AT d-2,c
;" ";AT d-1,c;" ";AT d,c; FLAS
H 1; INK 2; PAPER 6;"*": GO TO 6
00
590 NEXT e
600 PRINT INK 2; FLASH 1;AT 5,3
;" YOU HIT A FLOCK OF BIRDS! ":
GO TO 800
610 REM CRASH LANDING
620 PRINT INK 2; FLASH 1;AT 5,2
;" YOU MISSED THE LANDING PAD ";
AT 7,7;" AND BROKE A LEG ": BEEP
630 FOR a=30 TO 5 STEP -4: BEEP
.2,a: BEEP .2,-a: NEXT a: BEEP
.7,-10: PAUSE 50: GO TO 720
640 REM HIT BUILDING
650 PRINT AT x,y-1; PAPER 6; IN
K 2; FLASH 1;"*";AT 5,1;" YOU CR
ASHED INTO A BUILDING ": GO TO 8
00
660 PRINT AT x-1,y-2; PAPER 6;
INK 2; FLASH 1;"*";AT 5,1;" YOU
CRASHED INTO A BUILDING ": GO TO
800
670 REM SAFE LANDING
680 PRINT INK 1;AT 19,19;" ";AT x-2
20,19;" ";AT x-1,y-1;" ";AT x-2,y
,y-1;" ";AT x-1,y+1;
+1
```

GLIDER

For SPECTRUM By RON RIDGE

Hang gliding in a city centre can be very hazardous to your health! On the way down you can cream into flocks of birds or plough into buildings — nasty. Then, if you miss the green landing spot you can break a leg. All fun stuff.

Use the 'Z' key to control your descent and hit the green spot as many times as you can out of ten. Good luck, and don't break a leg!




```
690 PRINT INK 3;AT 5,8; FLASH 1
;"CONGRATULATIONS ";AT 7,7;"YO
U LANDED SAFELY": LET L=L+1: PR
INT INK 1;AT 0,30; INVERSE 1;L
700 BEEP .2,12: BEEP .2,11: BEE
P .2,15: BEEP .2,22: BEEP .3,22
BEEP .2,15: BEEP .2,14: BEEP .2
,19: BEEP .2,14: BEEP .25,12
710 REM CHECK FOR GAME END
720 IF F<10 THEN PAUSE 100: CLS
: GO TO 80
725 IF F=10 THEN CLS : PRINT AT
9,1;"YOU HAVE COMPLETED 10 FLIG
HTS";AT 12,10;"AND YOU MADE ";AT
14,8;L;" SAFE LANDINGS": LET L=
0: LET F=0
730 PAUSE 100: PRINT #1;" LI
KE TO TRY AGAIN Y/N": PAUSE 0
740 IF INKE $="" THEN GO TO 730
750 IF INKEY$="Y" THEN CLS : GO
TO 80
760 REM END GAME
770 IF INKEY$="N" THEN CLS : PR
INT AT 9,6;"PERHAPS YOUR'E RIGHT
"'"'" LUDO IS A SAFER PASTIM
E": STOP
780 IF INKEY$<>"Y" OR INKEY$<>"
N" THEN GO TO 750
790 REM FUNERAL MARCH
800 LET O=PI-PI: LET P=PI/PI: B
EEP .6,0: BEEP .4,0: BEEP .2,0:
BEEP .6,0: BEEP .4,3: BEEP .2,2:
BEEP .4,2: BEEP .2,0: BEEP .4,0
BEEP .2,-P: BEEP .6,0
810 GO TO 720
820 REM INSTRUCTIONS
830 PRINT AT 2,9; INK 1; PAPER
6; FLASH 1;" HANG GLIDING "
840 PRINT AT 5,1;"You stand poi
sed and ready to launch on a f
light down to the green landing
pad below."
850 PRINT AT 9,1;"Key 'Z' will
start your flight and will also
bring you nearer to the ground
"
860 PRINT AT 13,1;"Miss the lan
ding pad and you will be inju
red.Hit a building and you will
be killed." Watch out for
the birds,they will bring you
crashing down."
865 PAUSE 100: PRINT #1;" PRESS
ANY KEY TO START GLIDING": PAUS
E 0: GO TO 60
```

```
870 REM SET UP GRAPHICS
880 RESTORE 910 : FOR a=USR "A"
TO USR "T"+7
890 READ user: POKE a,user
900 NEXT a
910 DATA 0,0,0,0,1,15,63,252
920 DATA 0,1,7,31,255,255,216,0
930 DATA 2,60,63,15,59,0,0,0
940 DATA 0,0,0,128,192,224,16,3
2
950 DATA 0,0,0,0,128,240,252,33
960 DATA 0,128,221,248,255,255,
31,0
970 DATA 0,0,0,1,3,7,8,4
980 DATA 54,-5,252,240,220,0,0,
0
990 DATA 0,0,0,1,15,111,255,3
1000 DATA 0,0,0,528,224,236,255,
16
1010 DATA 5,17,18,23,27,1,0,0
1020 DATA 104,136,8,232,216,128,
0,0
1030 DATA 240,56,15,7,3,1,52,104
1040 DATA 0,0,192,148,255,254,12
4,56
1050 DATA 48,96,96,96,32,32,32,8
8
1060 DATA 255,153,153,255,255,15
3,153,255
1070 DATA 0,0,0,0,0,0,24,24
1080 DATA 195,60,24,24,24,36,36,
98
1090 DATA 192,32,12,50,16,192,36
,1
```

```
1100 DATA 74,148,136,127,254,124
,48,68
1110 REM TITLE SCREEN
1140 INK 1: PAPER 7: BORDER 0: B
RIGHT 1: CLS
1150 LET Y=4: LET Z=27
1160 LET a$=" H A N G  G L I D E
R "
1170 PRINT INK 4;AT 21,0;"
"
1180 LET A=-20
1190 FOR T=1 TO LEN A$
1200 PRINT INK 1; PAPER 6;AT 5,T
+4;A$(T); PAPER 7; INK 1;AT 5,T+
5;" "; INK 2;AT 4,T+4;" "
1210 BEEP .1,A: LET A=A+2
1220 NEXT T
1230 FOR U=1 TO 17
1240 PRINT INK 2;AT Y,Z;" ";AT
Y+1,Z; INK 1;" ";AT Y-1,Z;" "
1250 BEEP .1,U/3
1260 LET Y=Y+1
1270 IF Y=20 THEN PRINT AT Y-1,Z
;" ";AT Y,Z;" ";AT Y,Z; INK 2;
PAPER 6; FLASH 1;"*": BEEP .1,1
0: BEEP 1,2: PAUSE 200: RETURN
1280 NEXT U
```

FUN WITH SPEECH 64!



Speech Synthesiser for the Commodore 64

SPEECH 64 for the Commodore 64 is ready to talk immediately on power-up, has an infinite vocabulary and extra BASIC commands. Retailing at only **£29.95**, ***SPEECH 64***'s advanced features will give you, your family and friends lots more fun with your computer! Its sister unit μSPEECH — for the Sinclair Spectrum — is a smash hit in the UK and over 10 other countries, and has been awarded the CTA 'Product of the Year' accolade.

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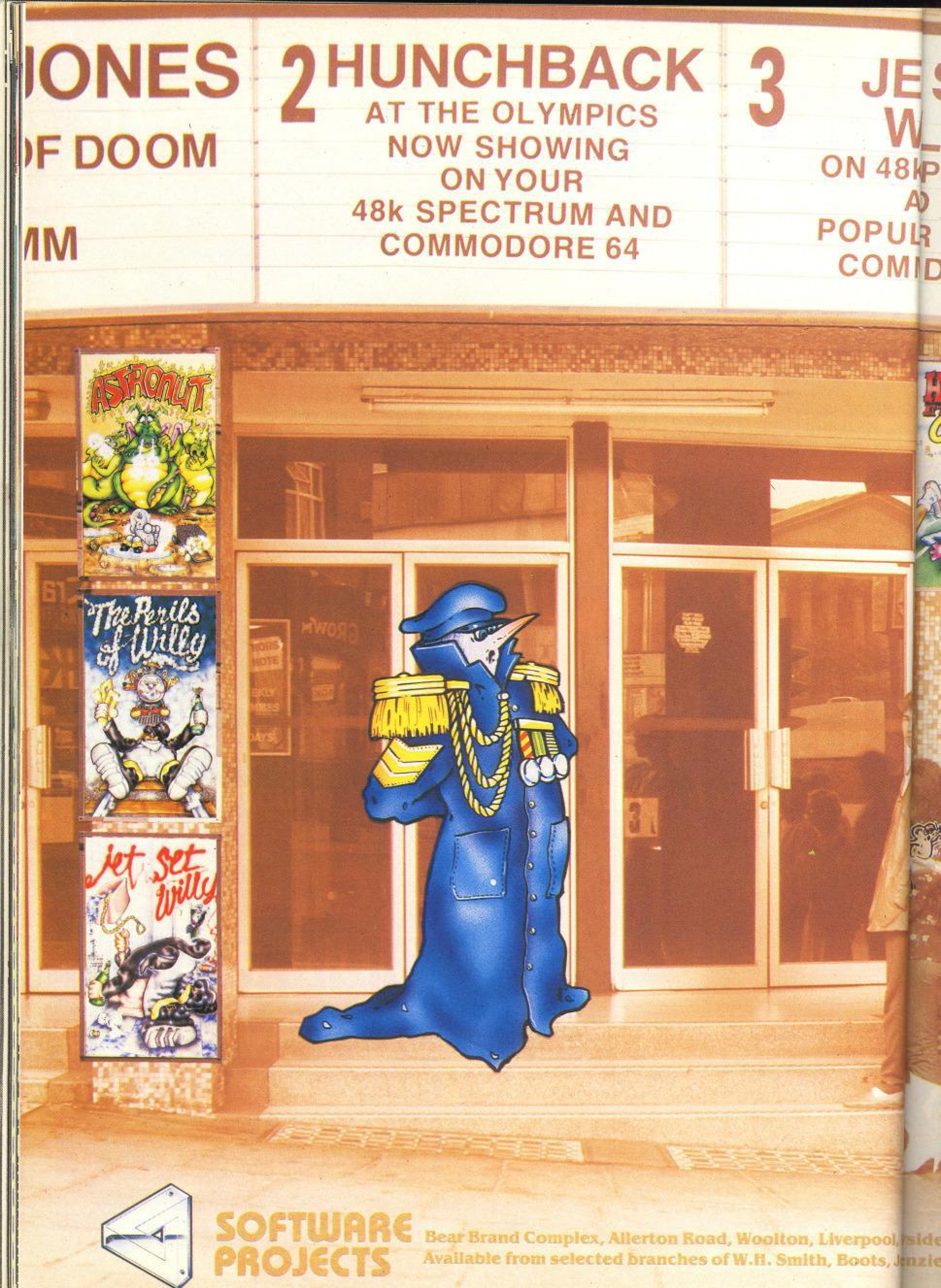
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STORM

For BBC by A. TRENKER

```
    1 REM STORM  COPYRIGHT OCTOSOFT 1984
                A.TRENKER D.SCHWANENFLU
GEL
    4*FX12,0
    5 INPUT"LEVEL PLEASE (1 EASY 10 IMPO
SSIBLE)",I
    6 D%=6
   10 MODE5
   20 PROCINIT
   30 VDU23,1,0;0;0;0
   40*FX11,5
   42*FX12,20
   50 COLOUR1
   60 TIME=0
 1000 FOR N=1TOP:PROCKEY:PROCF:NEXT
 1001 IF FNH GOTO 2000 ELSE IFFNO THEN20
00
 1002 PROCROCK:GOTO1000
 2000 SOUND 2,-15,10,30:IFFNO M$="OUT OF
 FUEL" ELSE M$="HIT BY ASTEROID"
 2001 CLS:MODE7:ACROSS=11:C=1:PROCBIGLET
TER
```





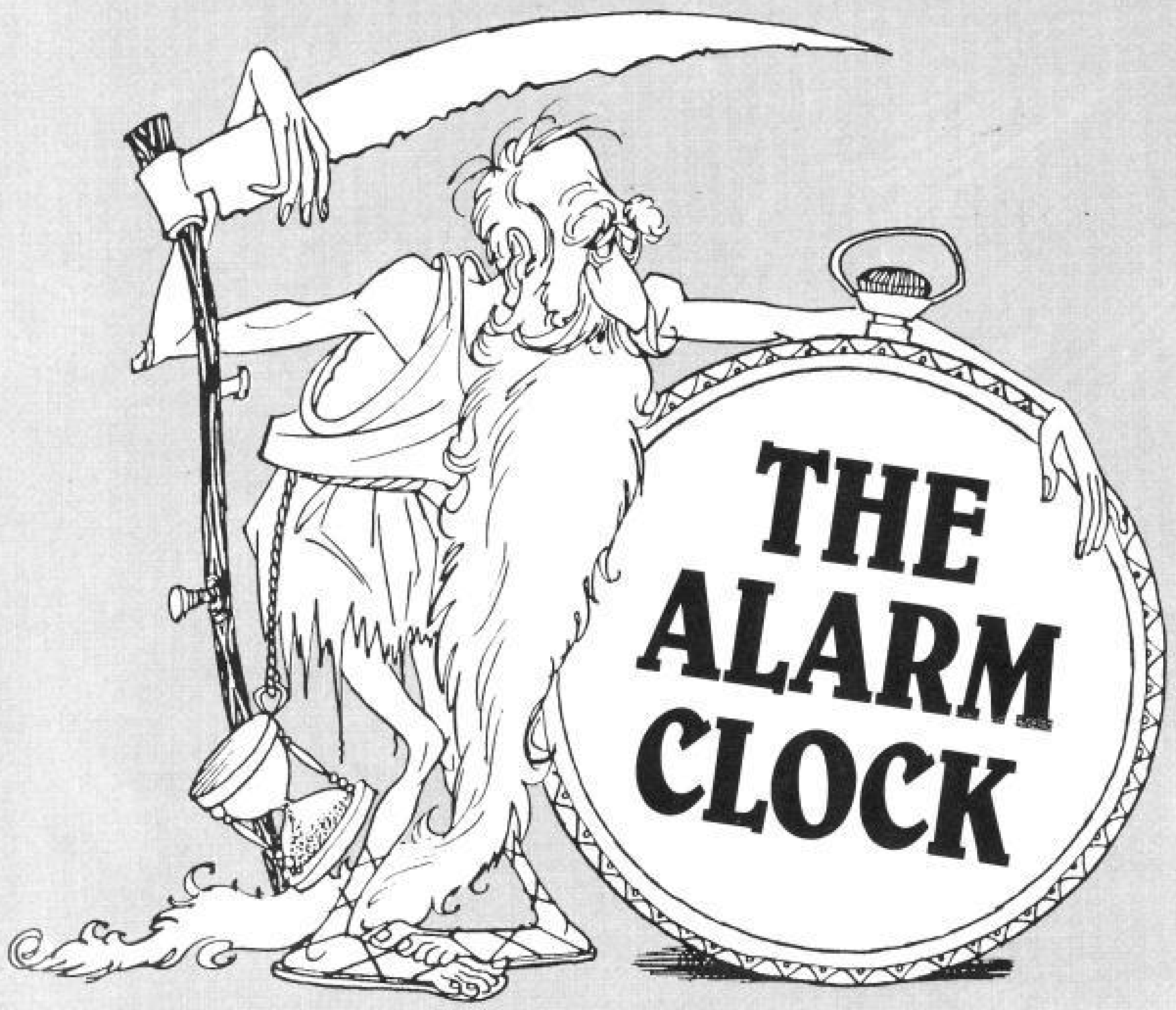
In a dense meteor storm, the good ship Pegasus is battling for survival. How long can it survive without running out of fuel — or getting crushed by a huge boulder? Quite frankly, pal, that's up to you. The controls are in front of you and there are fuel cells out there to pick up . . . if you can get to them. Chortle, chortle.

CONTROLS:
, = LEFT
. = RIGHT
1 = RETROS FIRED
Q = ACCELERATE

HINTS — Go as fast as possible to get the best score. However, the slower you approach a fuel cell the more fuel you get. Have a nice trip!

```
 2002 SCORE%=(D^3/TIME/600)
 2003 VDU10.10,10:PRINTTAB(14)" SCORE=";
SCORE%:VDU10,10:*FX12,0
 2004 FOR T=1TO255STEP30:SOUND1,-14,T,2:
NEXT:*FX15,1
 2005 M$="ANY KEY TO PLAY AGAIN":C=4:ACR
OSS=7:PROCBIGLETTER:VDU10,10,10:RUN
 9000 DEF PROCINIT
 9013VDU23,230,28,73,93,127,127,93,8,0
 9015VDU23,231,32,120,124,60,127,62,14,2
 9020VDU23,232,57,127,126,60,124,126,60,
14
 9025VDU23,233,0,56,28,62,62,28,8,0
 9026VDU23,234,62,99,111,103,111,111,127
,62
 9027 F%=300
 9029 D=10
 9030 X%=RND(6)+6
 9031 DEFFNR=(RND(1)<1/10*(D/999))
 9033 DEFFNF=(RND(1)<1/500)
 9034 DEFFNO=(F%<0)
 9035 DEFFNH=(POINT(X%*64+32,O%)=2)
 9036 DEFFNG=(POINT(X%*64+32,O%)=3)
 9037ENVELOPE1,0,7,-2,2,6,12,6,127,0,0,-
127,126,0
 9038 DEFFNLF=(F%<30ANDF%>27)
 9039 VDU23,1,0;0;0;0;
 9040P=5:O%=780
 9090ENDPROC
 9100DEF PROCKEY
 9103 IF FNG SOUND 1,2,40,5:F%=F%+10
 9104 IFFNLF SOUND1,1,30,30 :F%=F%-4
 9105 PRINTTAB(X%,D%-1)CHR$(32)
 9110A=INKEY(1)
 9115IFA=44 THEN IF X%>1 THEN PRINTTAB(X
%,D%)CHR$32:X%=X%-1:PRINTTAB(X%,D%)CHR$2
30:F%=F%-1
 9120IFA=46 THEN IF X%<19 THEN PRINTTAB(
X%,D%)CHR$32:X%=X%+1:PRINTTAB(X%,D%)CHR$
230:F%=F%-1
 9125IF A=49 THEN IF P<10 P=P+.6:F%=F%-2

 9126IF A=81 THEN IF P>0 P=P-.5:F%=F%-3
 9130 PRINTTAB(X%,D%)CHR$(230)
 9131 SOUND 1,-10,120-P*10,1:SOUND1,0,0,
0
 9132 PRINTTAB(X%,D%-2)CHR$(32)
 9140 D=D+1
 9190ENDPROC
 9200DEFPROCROCK
 9205 COLOUR2
 9210IF FNR PRINT TAB(RND(19),30)CHR$(RN
D(3)+230) ELSE PRINTTAB(0,30)" "
 9211IF FNR PRINT TAB(RND(19),30)CHR$(RN
D(3)+230)
 9212IF FNR PRINT TAB(RND(19),30)CHR$(RN
D(3)+230)
 9213IF FNR PRINT TAB(RND(19),30)CHR$(RN
D(3)+230)
 9214IF FNR PRINT TAB(RND(19),30)CHR$(RN
D(3)+230)
 9215 COLOUR1
 9218 IF FNF COLOUR3:PRINTTAB(RND(19),30
)CHR$(234)
 9219 COLOUR1
 9220VDU10
 9221 PRINTTAB(X%,D%-1)CHR$(32)
 9290ENDPROC
 9600 DEFPROCBIGLETTER
 9601 PRINTCHR$(128+C);
 9602 PRINTTAB(ACROSS)CHR$(141);M$:PRINT
CHR$(128+C);:PRINTTAB(ACROSS)CHR$(141);M
$
 9605 ENDPROC
 9700 DEFPROCF
 9705 PRINTTAB(0,0);"FUEL "F%;"  TIME ";
INT(TIME/100);" "
 9710ENDPROC
```



Can it be those Invaders you are thrashing at 3.00am are the same ones you were belting at 7.00pm? You need an alarm clock like this useful time-tracking BBC utility from KIM ALDIS...

THE FIRST LAW of computing tells you real world time and key-bashing time are not the same thing. Doing a Fred Astaire on the keys for a subjective thirty seconds can turn out to be (have been?) three weeks when you look up at the clock on the wall.

The Alarm Clock is one way of combating the alarming way in which time passes when hammering the keys. It's an interrupt driven routine (more of that later) and it works with any BASIC program. Arcade games might cause a bit of a problem as it stands but if you trim it down a bit and shove it somewhere it won't get in the way you should be in business.

In this listing the code is assembled in the user defined character area from &C00 but this can be changed by altering the value of the variable 'code'. Other possible areas are given later.

Modes

There is a slight problem — it only displays the time in mode 7. This is because it pokes directly into screen memory. For the benefit of the joker out there who's raising his eyebrows and saying what the hell use is that, there's good reason. The alternative method of getting the time on the screen is to save the current text cursor position, move it to the top of the screen, print the time and then move it back to its original position. All very nice and hunky dory except for one small point. If you're editing a BASIC program there are two cursors. One where you're putting text and one where you've moved to with the cursor keys for copying. This makes life complicated when you return from the routine after it's finished printing the time. If you're editing you suddenly find yourself typing in the wrong part of the screen. OK clever boy? Whatever mode you're in the alarm still goes off fit to wake the dead so it's no big deal.

Diversion

So what's an interrupt? While the computer is running your program it's also doing lots of other things in the background: like refreshing memory, scanning the keyboard etc. It looks as though it's doing more than one thing at a time but in fact all the tasks that need to be carried out in the background are copping bits of the CPU's spare time by generating interrupts. If, say, the keyboard wants some attention it gives the CPU the electronic equivalent of a tap on the shoulder and utters the immortal words, 'Over 'ere John'. The CPU tidies up its current task and then diverts its attention to whatever has interrupted it. When it finishes it carries on with what it was doing in the first place.

Eventful

The thing about interrupts on the BBC is that they're a piece of cake to get at. Under certain conditions something called an Event is generated which can be made to cause an interrupt (when events are 'enabled'). A list of events is given for all to see on Page 425 of the Acorn Bible. For an alarm clock it seems sensible to use the 'interval timer crossing zero' event. Set the timer to minus one, it counts up and when it crosses zero it generates an event. All we need is to write a routine which increments a counter in memory, displays the counter in terms of hours and minutes and reset the timer to minus one so the whole process can then start all over again.

Breakdown

The nice thing about an interrupt driven routine is it carries on even when you junk the program that caused it and run a new one. So now you know. Big Brother Clive and the Quantum Lunch-pail aren't the inventors of multitasking.

Just by way of added value the routine includes a little-known way of disabling the Break key! When Break is pressed the operating system looks at location &287 for a JMP instruction. If it's not there it carries on and does its suicide number as per normal. However if there is a JMP it does two jumps to the address held in the next two bytes, firstly with the carry flag clear then, after the system has been reset with the flag set.

The listing is well structured and REMmed so it's fairly easy to follow. Line 150 disables events (if you don't do this then while the code is being assembled then the interrupt only has half a routine to go to. The computer promptly knots its knickers and refuses to talk to you). The registers have to be saved before and restored after the routine is entered in order that the operating doesn't get upset when it goes back to its primary task.

To use the clock just enter the time and alarm at the appropriate prompts. Once set it carries on quite happily whether there's a program running or not. Even pressing BREAK has no effect on it. To change the time or the alarm just reload the program and run it again.

Codes

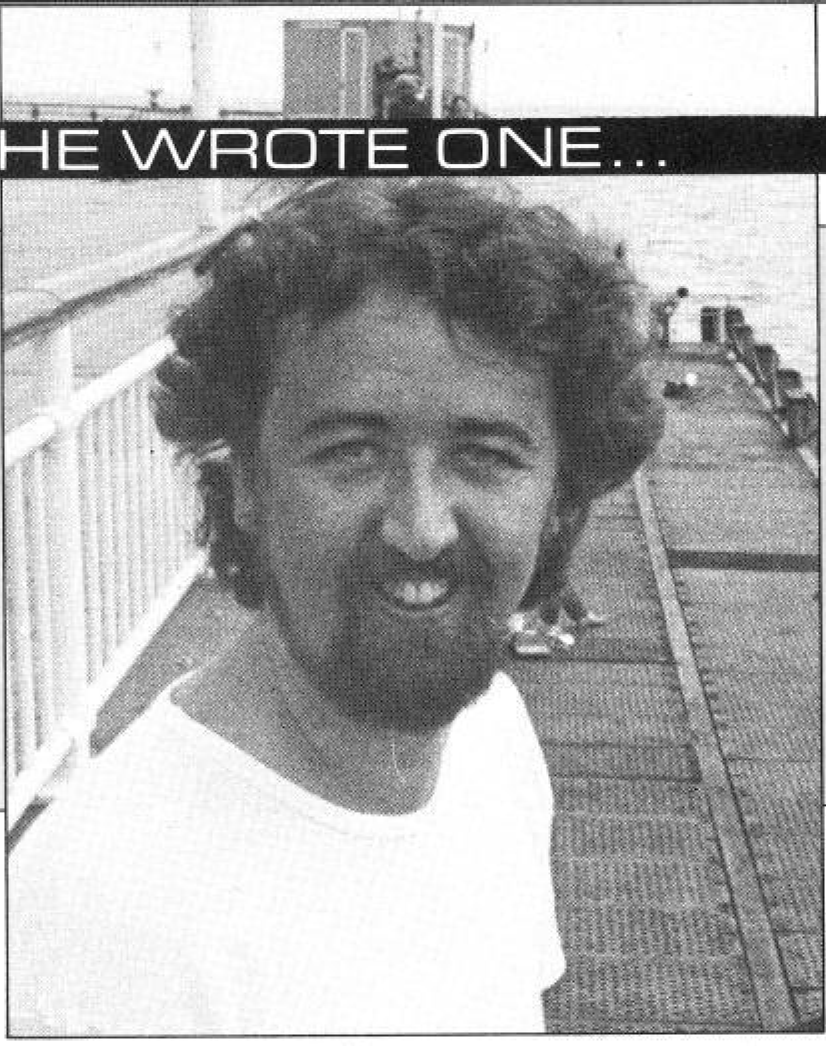
If you want to use the user defined characters then try altering the value of code to one of the following:
code=&800 . . . sound and printer buffers.
code=&900 . . . cassette output buffer.
code=&B00 . . . soft key buffer.
code=&D00 . . . if you use discs forget it, if not it's probably the best place for it.

Remember putting things into buffers that aren't meant to be put there can produce strange results. Of course, you could always take the view that as you've paid the the thing you might as well do what you like with it.

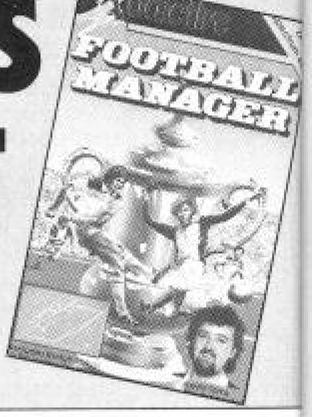
Full listing begins opposite. Remember, careful typing and checking is the BIG K key to smooth-running programs.

```
10 REM" ************************
20 REM" *      ALARM CLOCK      *
30 REM" *       (C) 1984        *
40 REM" *      KIM ALDIS        *
50 REM" ************************
60
70MODE7
80code=&C00
90OSWORD=&FFF1:OSWRCH=&FFEE:OSBYTE=&F
FF4
100screen=&70
110PROCass
120PROCsetbreak
130PROCset_time
140END
150DEFPROCass
160*FX13,5
170 FOR I%=0 TO 2 STEP 2
180P%=code
190[OPT I%
200BCC end
210.start
220LDA #clock MOD 256 \Store address
230STA &220                  \of routine
240LDA #clock DIV 256 \at event vector
250STA &221
260LDA #14                  \re-enable
270LDX #5                   \events
280JSR OSBYTE
290.clock
300PHP                      \save registers
310PHA
320TXA
330PHA
340TYA
350PHA
360\" ....... SAVE REGS
370JSR write_clock
380JSR inc_time
390JSR print_time           \restore
400PLA                      \registers
410TAY
420PLA
430TAX
440PLA
450PLP
460.end
470RTS
480.write_clock
490LDX #clock_paras MOD 256
500LDY #clock_paras DIV 256
510LDA #4                   \set timer
520JSR OSWORD               \to -1
530RTS
540.inc_time                \update counter
550SED
560LDA secs
570CLC
580ADC #1
590STA secs
600CMP #&60
610BMI end1
620LDA #0
630STA secs
640LDA mins
650CLC
660ADC #1
670STA mins
680CMP #&60
690BNE end1
700LDA #0
710STA mins
720LDA hours
730CLC
740ADC #1
750STA hours
760CMP #&24
770BNE end1
780LDA #0
790STA hours
800.end1
810CLD                      \check for
820LDA hours                \time reached
830CMP alhours              \alarm setting
840BNE out
850LDA mins
860CMP almins
870BNE out
880LDA secs
890CMP #10
900BPL out
910LDY #0
920.alarm                   \sound alarm
930LDA #7                   \and display
940JSR OSWRCH               \message
950LDA message,Y
960JSR OSWRCH
970INY
980CMP #&0D
990BNE alarm
1000.out
1010RTS
1020\" _______________
1030.print_time             \update screen
1040LDA &350                \find top of
1050STA screen              \screen
1060LDA &351
1070STA screen+1
1080LDY #0
1090LDA hours
1100JSR print               \update screen
1110LDA #ASC":"             \display of
1120STA (screen),Y          \time
1130INY
1140LDA mins
1150JSR print
1160LDA #ASC":"
1170STA (screen),Y
1180INY
1190LDA secs
1200JSR print
1210LDA #ASC" "
1220STA (screen),Y
1230RTS
1240.print
1250PHA                     \convert to
1260AND #&F0                \decimal for
1270CLC                     \display
1280ROR A
1290ROR A
1300ROR A
1310ROR A
1320CLC
1330ADC #ASC"0"
1340STA (screen),Y
1350INY
1360PLA
1370AND #&F
1380CLC
1390ADC #ASC"0"
1400STA (screen),Y
1410INY
1420RTS
1430.hours                  \storage area
1440EQUB 0                  \for counters
1450.mins                   \and message
1460EQUB 0
1470.secs
1480EQUB 0
1490.alhours
1500EQUB0
1510.almins
1520EQUB 0
1530.message
1540 EQUS STRING$(20," ")+CHR$&0D
1550.clock_paras
1560 EQUD &FFFFFF9C
1570EQUB&FF
1580]:NEXT
1590ENDPROC
1600DEFPROCset_time
1610CLS
1620PRINT''"ENTER TIME"
1630INPUT"HOURS",hrs$
1640INPUT"MINS",mns$
1650hrs$="&"+hrs$:mns$="&"+mns$:hrs%=EV
AL(hrs$):mns%=EVAL(mns$)
1660?hours=hrs%:?mins=mns%
1670CALL start
1680PRINT''"  ALARM"
1690INPUT"HOURS",alhrs$
1700INPUT"MINS",almns$
1710alhrs$="&"+alhrs$:almns$="&"+almns$
:alhrs%=EVAL(alhrs$):almns%=EVAL(almns$)
1720?alhours=alhrs%:?almins=almns%
1730PRINT''"Enter Message ";
1740INPUTmess$
1750mess$=mess$+CHR$&A
1760$message=mess$
1770ENDPROC
1780DEFPROCsetbreak
1790?&287=&4C
1800?&288=code MOD 256
1810?&289=code DIV 256
1820ENDPROC
```

HE WROTE ONE...



FRANKLY, BRIAN, THE GAME'S NOT WHAT IT WAS.



Says KEVIN TOMS, whose *Football Manager* prog has gained cult status. NICKY XIKLUNA blows the whistle . . .

KEVIN TOMS is TALL. It's like interviewing a tree. Except that no mere tree could write a computer game like *Football Manager*.

Football Manager — for the few non-initiates — is a strategy game which involves you in the raw economics of the sport. You decide on the players, bid on the transfer market, shell out wages and balance your economies. As you make your way through the leagues towards t'Cup, you are rewarded with graphical action sequences — "highlights" — from the matches you've played. The outcome, Brian, is not predictable.

Two years ago, in a Milton Keynes basement, the six and a half foot frame of the brain behind the (big) boots was bent in two as he stuck cassette labels onto his first ZX 80 versions of *Football Manager*.

Big Kevin gave up his job as a Cobol programmer, and put all his bytes in one (mail-order) basket bid. Right on cue, Uncle Clive brought out the Spectrum. That night, the ZX 80 waned forever. Big Kev transferred his prodigy to the Spectrum with marathon speed.

Football Manager has been transferred to the Beeb, and more recently to CBM 64. With improved graphics — the mode 7 pin-men have metamorphosed too, into solid flesh thanks to ex-YOPS programmer Peter Lunn. Overall the game has sold some 100,000 copies, the sole commodity that keeps Addictive Games' four personnel employed. Kevin Toms has thereby changed his title from "Chief Label Appender" to "Chief Games Designer".

Big Kev was once Little Kev, and that's when he started creating board games. Later he made calculators play games! He had several attempts at designing a football board game, but found that the necessary simplification ruined any sense of realism. With the advent of the home micro, the scales dropped from his eyes. But even now, 27-year-old Kev continues to think of himself as a games man rather than a computer man.

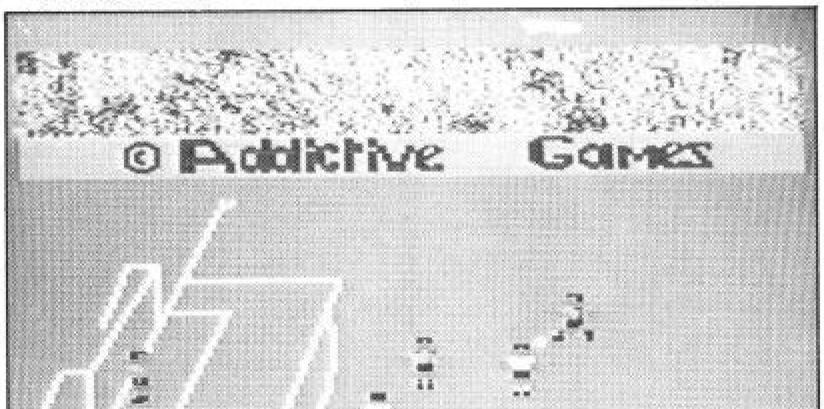
"All games are pure entertainment. They work through the effect they have on emotions, just like music or a novel. Now that's an entirely different approach to just branching over from programming. What's needed is to bring the experience of an old skill to a new industry. For example, all graphics should have a *use*. They shouldn't just look pretty.

"I don't like making things up. I enjoy working within constraints. The appeal of *Football Manager* lay in the fact that everyone was familiar with the game."

Surprisingly, Brian, Kevin Toms is not an out-and-out football fanatic. Having been sprogged in Paignton, Devon, he supports Torquay, in a lapsed kind of way.

"Football? A terrible shambles. I used to attend matches, but I got put off, along with many others. The managers just had no idea how to organise entertainment. They've never advertised and they can't stop the hooligans."

'Twas in Issue One of this very organ that Arsenal midfield player Charlie Nicholas placed *Football Manager* first in his personal league of computer soccer games, saying: "I'm not even sure that it's a game at all . . . could be useful — to Football Managers!"



Does the author have any ambitions to change art into life, and manage a team some day?

"Nope. I'm happy with what I'm doing. I just want to be the best in my field — that's all!

Tom's favourite games are *Buck Rogers in the 21st Century* and *Pole Position*. "My all time favourite is *Twin Kingdom Valley*. I don't play many games."

Secondary ambitions? "I'm very keen on getting hold of a good music synthesiser, like Alpha Centuri or an Apple. It's very arrogant, but I want to compose, and believe I can."

He confides that his favourite music is — heavy metal (yeccch!) Yes, this gentle giant gets his head down and knees up to the dulcet strains of Black Sabbath and Rainbow! He admits to having wild day-dreams about rock-stardom.

"I like being recognised. It's nice to get feedback — when people say they like what you've done."

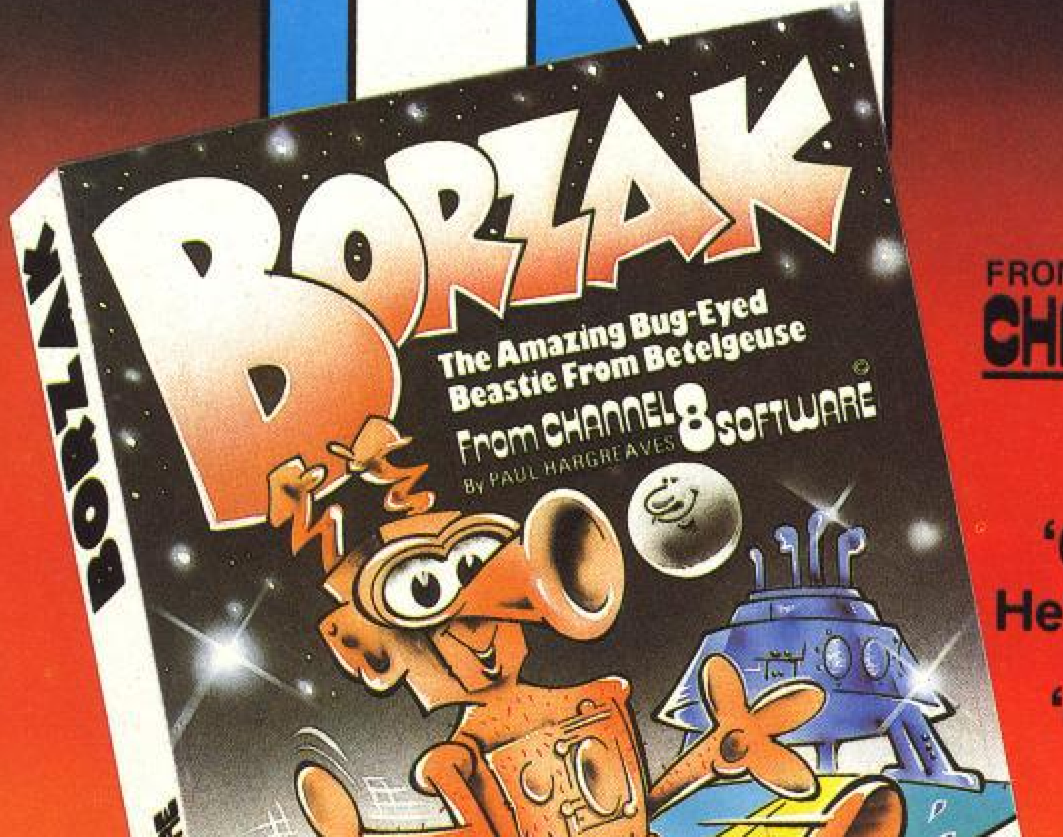
What is it with these programmers? They're all performers! Could the patient detailing of those obedient on-screen sprites hint at a deeper desire for the captivation and control of massive audiences? Or are music and maths inextricably linked in their dark souls? I'll let you know when I've got some more evidence.



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NEW

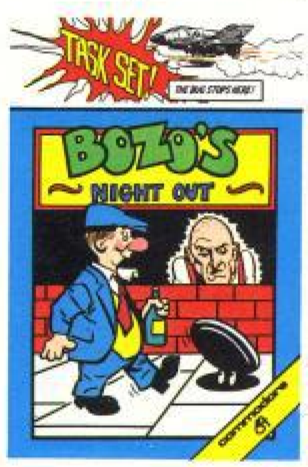
The complete deep space saga. A radical joystick action can bring inspired flexibility and a horrific kill-rate. The outstanding graphics include highly detailed craft and lots more than eight sprites at once. A full music and effects sound track accompanies the action. All these features combine with player options and a top 20 hi-score table to set new standards in hi-tech slaughter.



BOZO'S NIGHT OUT

NEW

A brand new character game. Poor old Bozo, all he has to do is to get home after a night out with the lads. That's easy until a wobble becomes a lurch and a stagger. Later into the night, all rules go out of the window as he disbelieves what's happening in front of his blood-shot eyes. An epic journey with ultra-smooth graphics and sprites which run rings round normal games.



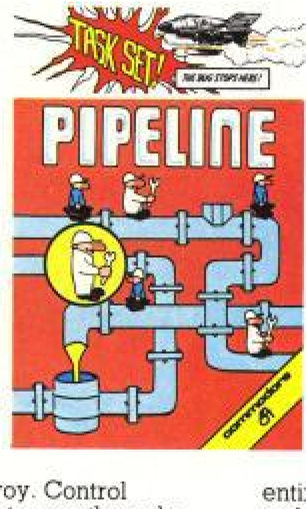
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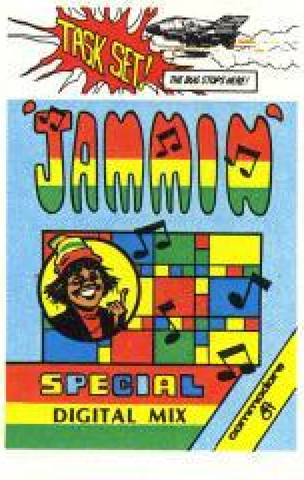
SUPER PIPELINE

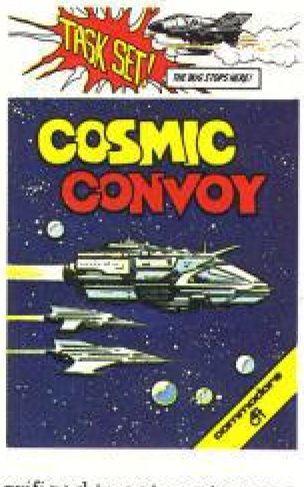
Keep the pipeline open. Foreman Fred and Plumber Pete have their work cut out. The evil ladderman drops metal wedges to plug the pipeline – and only Pete can fix 'em. Pete trusts Fred to defend him against the six-legged Venusian pipe spiders and the hard case lobster while he knocks out the plugs and restores the flow. Full accompanying music and effects, options and hi-score table.

JAMMIN'

Unlike anything else, a totally musical game yet highly colourful. Guide Rankin' Rodney through the top 20 mazes – each with an interactive rock sound track. Gather the instruments and make a band but watch out for bum-notes, dischord and that most deadly effect – distortion. If you've never heard the full music capabilities of the 64, grab an instrument and join the band.







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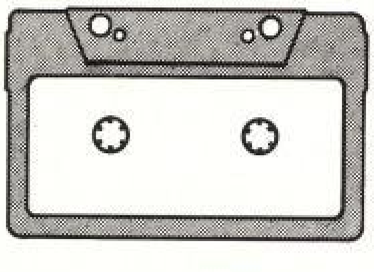
Naturally, everything we've written for the 64 is available on either cassette or disk.

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Major distributors include Microdealer UK, Websters, Centresoft and P.C.S.

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HERE IT IS folks — the game I promised you in last month's issue. Not only have I used redefined character sets but also Antic mode 4, the multi-coloured mode. There are also a few little extras here to whet your appetite for future instalments.

One useful technique I have incorporated is that of moving players by string manipulation. One of the Atari's stronger characteristics is its string handling capabilities. For those of you who have tried to move players from Basic you know only too well just how slow vertical movement can be. Using strings this program has been written entirely in Basic and the vertical movement of the missile is fairly fast.

The music for this program has not been done by using the SOUND statement. My thanks for help on this must go to a friend of mine called Brian Lee. I am what you might call tone deaf and Brian is a musician. He did the programming for the song 'Messing about on the river' entirely using POKEs.

The general idea of the game is quite simple. You are steering a boat down a stream with boulders in it to block your way. You have to torpedo them to stop yourself from crashing. As the program stands it is very simple and does have one or two quirks. The first is that with careful shooting you can blast your way through the grass verges and create a new river! This should be very easy to program. Alas, I did not have the time, as I was trying to sort out the other problem. Occasionally the boat crashes without hitting a rock! Whoops! Despite my many efforts I still cannot crack that one although as I write this accompanying article I think I know what the problem is. Although this may detract from the game slightly it was only intended as a demonstration. However, if you manage to solve it and let me know I will give a prize of one cartridge game from my own collection to the person who best solves it. So programmers, get cracking.

PROGRAM NOTES

The following is a line by line analysis of the program.

10 — DIMension the arrays used.
20 — Start with the title screen and music.
30 to 90 — Set up strings and variables used.
100 to 135 — Set up player missiles.
150 to 190 — Sets up first screen.
200 to 360 — Main program loop.
210 — Works out where to place boulders.
220 — Prints next part of river thus scrolling screen upwards.
230 — Resets RVs.
240 to 252 — Varies position of river on screen.
260 to 280 — Reads joystick and gets ready to position boat.
290 — Checks fire button and torpedoes not already fired.
300 If no torpedo jump firing section.
30 to 330 — Moves missiles.
340 to 360 — Checks for crash of boat.
500 to 540 — Missile hit routine.
2000 to 2060 — Boat crash routine.
3000 to 3050 — Create custom display list.
4000 to 4080 — New character set generation.
5000 to 5280 — Title screen and music.
6000 to 6030 — Game over.

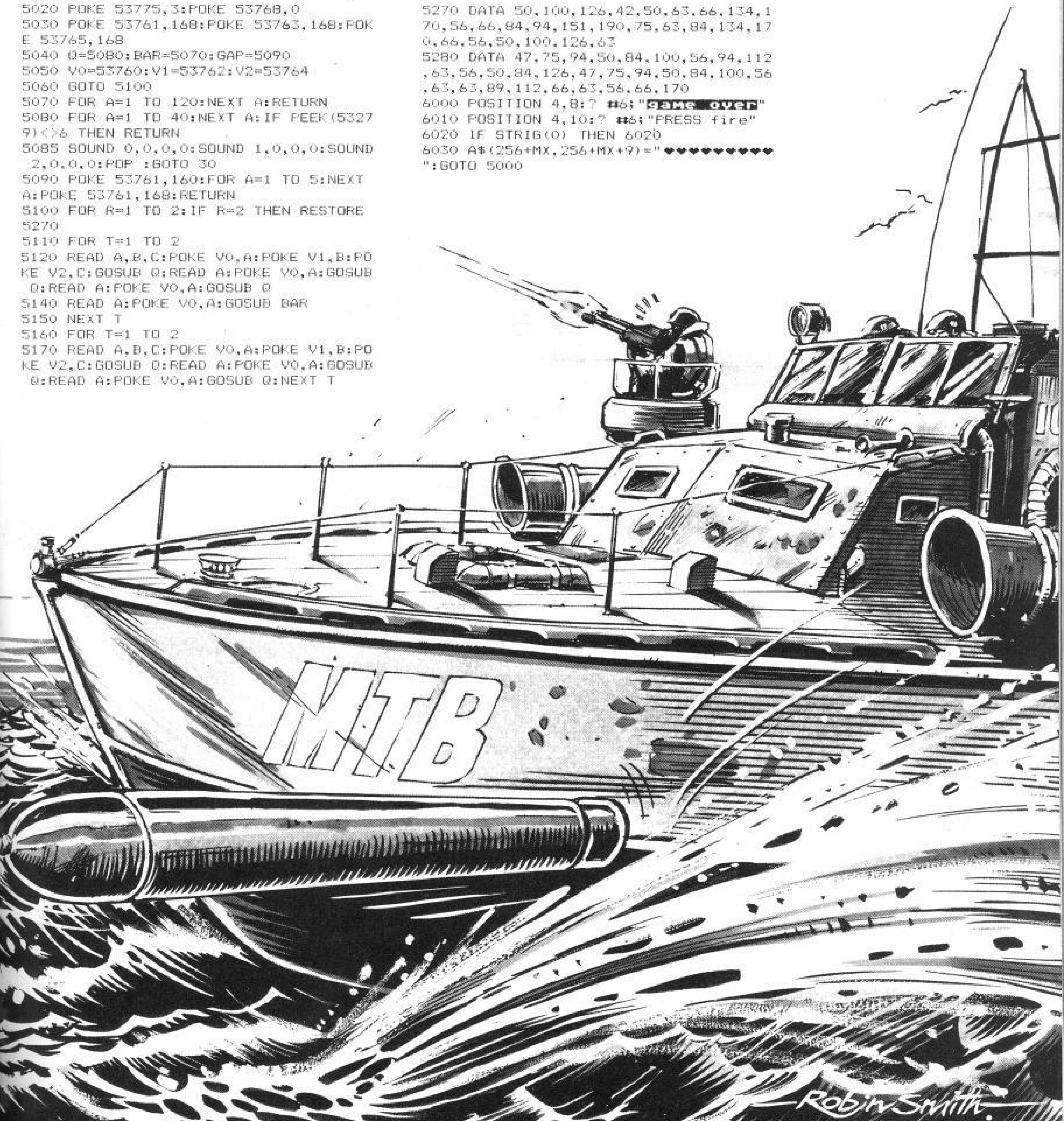
```
10 DIM A$(512),BOAT$(20),GRASS$(40),RV
$(12),BULL$(9)
20 GOTO 5000:REM ***MUSIC
30 BOAT$="♥♥<▣▣▣▣▣▣◂◂◂<<<┴┴┴♥♥"
40 A$="♥":A$(512)="♥":A$(2)=A$
50 BULL$="♥♥♥♥◢↑◢◢◢"
60 RV$="###$$$!!$$$###"
70 GRASS$="#":GRASS$(40)="#":GRASS$(2
)=GRASS$
90 SC=0:SL=80:TB=13:HS=0:LI=3:BO=0.7
95 REM *** SET UP PLAYER MISSILE AREA
100 V=PEEK(134)+PEEK(135)*256
110 P=(PEEK(106)-16)*256+1024-PEEK(140
)-PEEK(141)*256
120 POKE V+3,INT(P/256):POKE V+2,P-256
*INT(P/256)
130 POKE 54279,PEEK(106)-16:POKE 559,6
2:POKE 53277,3:POKE 623,1
135 A$(30,50)=BOAT$
140 REM ***SET UP REDEF'ND CHARS
150 GOSUB 4000
160 GOSUB 3000:REM DISPLAY LIST
170 Y=120:POKE 53248,Y:POKE 704,54
180 FOR I=0 TO 20:PRINT "##################
##########$$!!$$$##################################":
NEXT I
190 SOUND 0,SL,6,6:SOUND 1,8,8,4:POKE
53278,0:FL=0:FIRE=0:TB=13
200 REM START MAIN LOOP
210 IF FL=1 THEN X=INT(8*RND(0)+3):RV$
(X,X)="▨"
220 PRINT GRASS$(1,TB);RV$;GRASS$(1,(3
9-TB-12))
230 RV$="###$$!!$$$###":FL=0
240 FL=(RND(0)>BO)
250 TB=TB+INT(3*RND(0)-1)
251 IF TB=0 THEN TB=1
252 IF TB=27 THEN TB=26
260 JS=STICK(0)
270 IF JS=11 AND Y>50 THEN Y=Y-2
280 IF JS=7 AND Y<200 THEN Y=Y+2
290 IF STRIG(0)=0 AND FIRE=0 THEN FIRE
=1:MX=50:POKE 53249,Y-1:MY=Y-1
300 IF FIRE=0 THEN 330
310 A$(256+MX,256+MX+9)=BULL$
320 MX=MX+4:IF MX>110 THEN FIRE=0:A$(2
56+MX,256+MX+9)="♥♥♥♥♥♥♥♥♥♥"
330 POKE 53248,Y
340 IF PEEK(53252)<>1 THEN IF PEEK(532
52)<>5 THEN IF PEEK(53252)<>4 THEN 200
0
350 IF FIRE=1 THEN IF PEEK(53253)<>1 T
HEN IF PEEK(53253)<>5 THEN IF PEEK(532
53)<>4 THEN GOSUB 500
360 POKE 53278,0:GOTO 210
500 SOUND 2,10,0,14:SOUND 0,0,0,0:SOUN
D 1,0,0,0:HX=(MY-48)/4:HY=(MX-32)/8
510 COLOR 36:FOR I=-1 TO 1:FOR J=-1 TO
 1:PLOT HX+I,HY+J:NEXT J:NEXT I
520 POSITION 0,23:FIRE=0:POKE 53249,0:
A$(256+MX,256+MX+9)="♥♥♥♥♥♥♥♥♥♥":SOU
ND 0,SL,6,8:SOUND 1,8,8,4
530 IF SC=250 OR SC=500 OR SC=750 OR S
C=1000 THEN SL=SL-10:BO=BO-0.1
540 SOUND 2,0,0,0:SC=SC+10:RETURN
2000 SOUND 0,0,0,0:SOUND 1,0,0,0:POKE
53278,0
2010 FOR I=0 TO 255:POKE 704,I:SOUND 2
,I,0,14:NEXT I:POKE 704,54:SOUND 2,0,0
,0:LI=LI-1
2020 POKE 53249,0:POKE 53248,0:GRAPHIC
S 18:POSITION 4,2:? #6;"SCORE = ";SC:
POSITION 4,4:? #6;"LIVES = ";LI
2030 IF LI=0 THEN 6000
2040 POSITION 4,6:? #6;"PRESS FIRE"
2050 IF STRIG(0) THEN 2050
2060 A$(256+MX,256+MX+9)="♥♥♥♥♥♥♥♥♥♥
":GOTO 160
3000 GRAPHICS 0:POKE 752,1:POKE 82,0:P
OSITION 0,0:POKE 708,152:POKE 711,23
3010 POKE 756,CHSET/256
3020 DL=PEEK(560)+256*PEEK(561):POKE D
```



```
L+3,68:POKE DL+28,0
3030 FOR I=6 TO 27:POKE DL+I,4:NEXT I
3040 POKE 559,62:POKE 53277,3
3050 RETURN
4000 CHSET=256*(PEEK(106)-8):RESTORE 4
030
4010 READ A:IF A=-1 THEN RETURN
4020 FOR I=0 TO 7:READ B:POKE CHSET+A*
8+I,B:NEXT I:GOTO 4010
4030 DATA 0,0,0,0,0,0,0,0,0
4040 DATA 1,255,255,255,255,255,255,25
5,255
4050 DATA 4,85,85,85,85,85,85,85,85
4060 DATA 3,170,170,170,170,170,170,17
0,170
4070 DATA 5,125,255,255,255,255,255,25
5,125
4080 DATA -1
5000 GRAPHICS 18:POSITION 3,1:? #6;"BO
ULDER TROUBLE":POSITION 4,4:? #6;
"by n farrier"
5010 POSITION 5,5:? #6;"MARCH 1984":P
OSITION 4,9:? #6;"press  start":R
ESTORE 5270
5020 POKE 53775,3:POKE 53768,0
5030 POKE 53761,168:POKE 53763,168:POK
E 53765,168
5040 Q=5080:BAR=5070:GAP=5090
5050 V0=53760:V1=53762:V2=53764
5060 GOTO 5100
5070 FOR A=1 TO 120:NEXT A:RETURN
5080 FOR A=1 TO 40:NEXT A:IF PEEK(5327
9)<>6 THEN RETURN
5085 SOUND 0,0,0,0:SOUND 1,0,0,0:SOUND
 2,0,0,0:POP :GOTO 30
5090 POKE 53761,160:FOR A=1 TO 5:NEXT
A:POKE 53761,168:RETURN
5100 FOR R=1 TO 2:IF R=2 THEN RESTORE
5270
5110 FOR T=1 TO 2
5120 READ A,B,C:POKE V0,A:POKE V1,B:PO
KE V2,C:GOSUB Q:READ A:POKE V0,A:GOSUB
 Q:READ A:POKE V0,A:GOSUB Q
5140 READ A:POKE V0,A:GOSUB BAR
5150 NEXT T
5160 FOR T=1 TO 2
5170 READ A,B,C:POKE V0,A:POKE V1,B:PO
KE V2,C:GOSUB Q:READ A:POKE V0,A:GOSUB
 Q:READ A:POKE V0,A:GOSUB Q:NEXT T
5180 READ A,B,C:POKE V0,A:POKE V1,B:PO
KE V2,C:GOSUB Q:READ A:POKE V0,A:GOSUB
 Q:GOSUB Q:GOSUB BAR:NEXT R
5190 FOR T=1 TO 2
5200 READ A,B,C:POKE V0,A:POKE V1,B:PO
KE V2,C:GOSUB Q:GOSUB GAP:GOSUB Q:GOSU
B GAP:GOSUB Q:NEXT T
5210 READ A,B,C:POKE V0,A:POKE V1,B:PO
KE V2,C:GOSUB Q:READ A:POKE V0,A:GOSUB
 Q:READ A:POKE V0,A:GOSUB Q
5220 READ A,B,C:POKE V0,A:POKE V1,B:PO
KE V2,C:GOSUB BAR
5230 READ A,B,C:POKE V0,A:POKE V1,B:PO
KE V2,C:GOSUB Q:GOSUB GAP:GOSUB Q:GOSU
B GAP:GOSUB Q
5240 READ A,B,C:POKE V0,A:POKE V1,B:PO
KE V2,C:GOSUB Q:READ A:POKE V0,A:GOSUB
 Q:READ A:POKE V0,A:GOSUB Q:GOSUB GAP
5250 READ A,B,C:POKE V0,A:POKE V1,B:PO
KE V2,C:GOSUB Q:READ A:POKE V0,A:GOSUB
 Q:READ A:POKE V0,A:GOSUB Q
5260 READ A,B,C:POKE V0,A:POKE V1,B:PO
KE V2,C:GOSUB BAR:RESTORE 5270:GOTO 51
00
5270 DATA 50,100,126,42,50,63,66,134,1
70,56,66,84,94,151,190,75,63,84,134,17
0,66,56,50,100,126,63
5280 DATA 47,75,94,50,84,100,56,94,112
,63,56,50,84,126,47,75,94,50,84,100,56
,63,63,89,112,66,63,56,66,170
6000 POSITION 4,8:? #6;"game over"
6010 POSITION 4,10:? #6;"PRESS fire"
6020 IF STRIG(0) THEN 6020
6030 A$(256+MX,256+MX+9)="♥♥♥♥♥♥♥♥♥
":GOTO 5000
```

by NIGEL FARRIER

for ATARI



BIG K charts

key

SP = Spectrum, AC = Acorn, 64 = Commodore 64, V20 = Vic 20, 81 = ZX 81, DR = Dragon 32, OR = Oric-1

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1	1	JET SET WILLY	Software Projects	*							£5.95
2	2	FIGHTER PILOT	Digital	*							£7.95
3	7	BLUE THUNDER	Richard Wilcox	*							£5.95
4	25	TRASHMAN	New Generation	*							£5.95
5	15	CODE NAME MAT	Micromega	*							£6.95
6	13	NIGHT GUNNER	Digital	*							£6.95
7	5	CHECQUERED FLAG	Psion	*							£5.95
8	3	ATIC ATAC	Ultimate	*							£5.50
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12	—	SPACE PILOT	Anirog		*		*				£7.95
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20	11	LUNAR JETMAN	Ultimate	*							£5.50
21	16	ZAXXAN	Starzone	*							£5.95
22	10	ANT ATTACK	Quicksilva	*							£6.95
23	—	FORBIDDEN FOREST	Cosmi			*					£8.95
24	—	DINKY DOO	Software Projects			*					£7.95
25	26	THE ALCHEMIST	Imagine	*							£5.50
26	23	THE SNOWMAN	Quicksilva	*							£6.95
27	29	DEFENDA	Interstellar	*							£5.95
28	20	WHEELIE	Microsphere	*							£5.95
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7 (6) POPEYE (Parker)
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9 (8) ENDURO (Activision)
10 (7) MS PAC MAN (Atari)
11 (10) Q-BERT (Parker)
12 (15) FROGGER (Parker)
13 (13) PHOENIX (Atari)
14 (23) RIVER RAID (Activision)
15 (16) DONKEY KONG (CBS/Coleco)
16 (18) DIG DUG (Atari)
17 (12) GALAXIAN (Atari)
18 (14) BATTLE ZONE (Atari)
19 (22) BIG BIRD EGG CATCH (Atari)
21 (20) PITFALL (Activision)
21 (26) SPACE INVADERS (Atari)
22 (—) KANGAROO (Atari)
23 (—) ALPHA BEAM (Atari)
24 (17) SNOOPY VS THE RED BARON (Atari)
25 (—) DECATHLON (Activision)
26 (19) MOON PATROL (Atari)
27 (25) COOKIE MONSTER MUNCH (Atari)
28 (29) SMURFS (CBS/Coleco)
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30 (24) TUTANKHAM (Parker)

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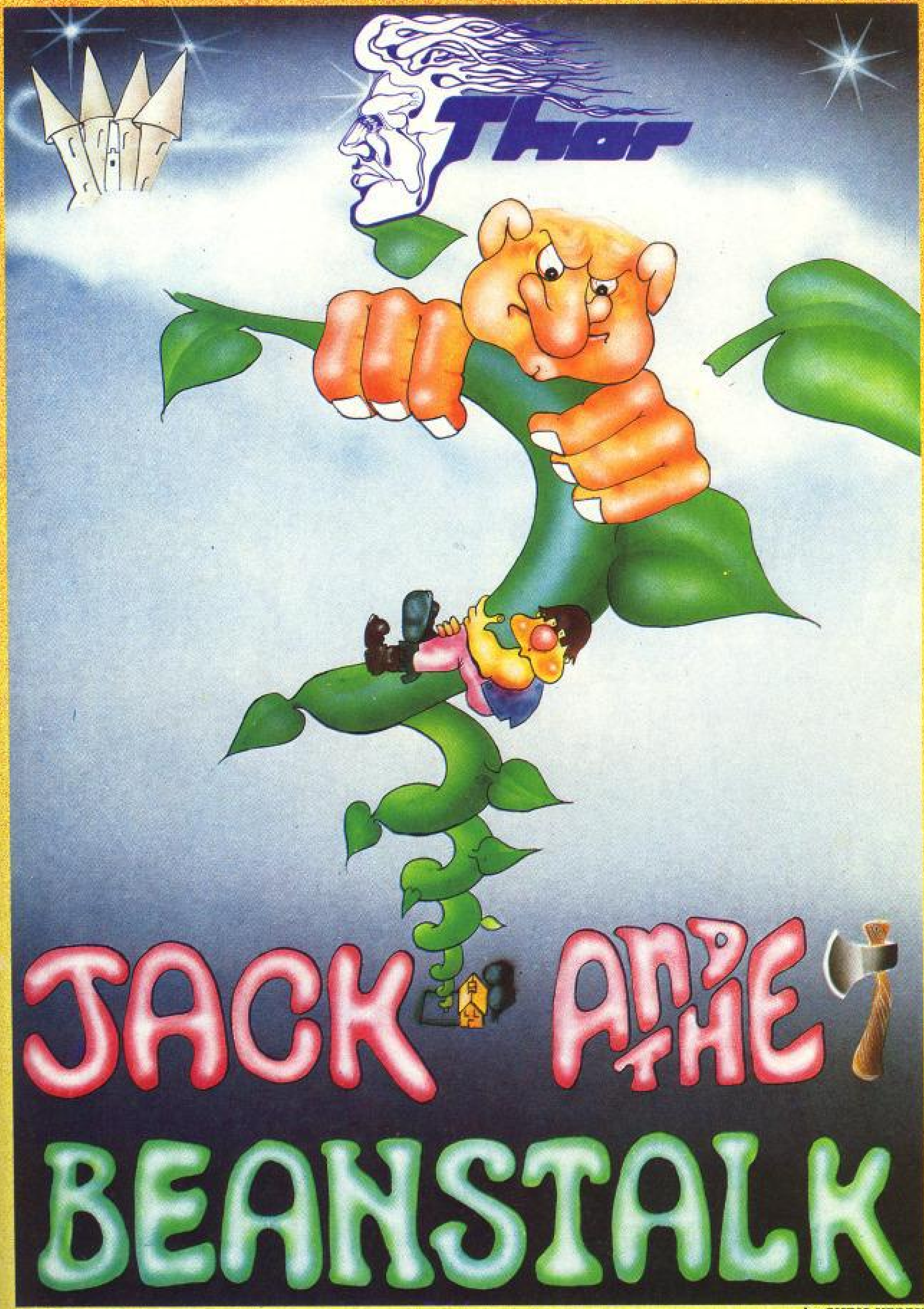
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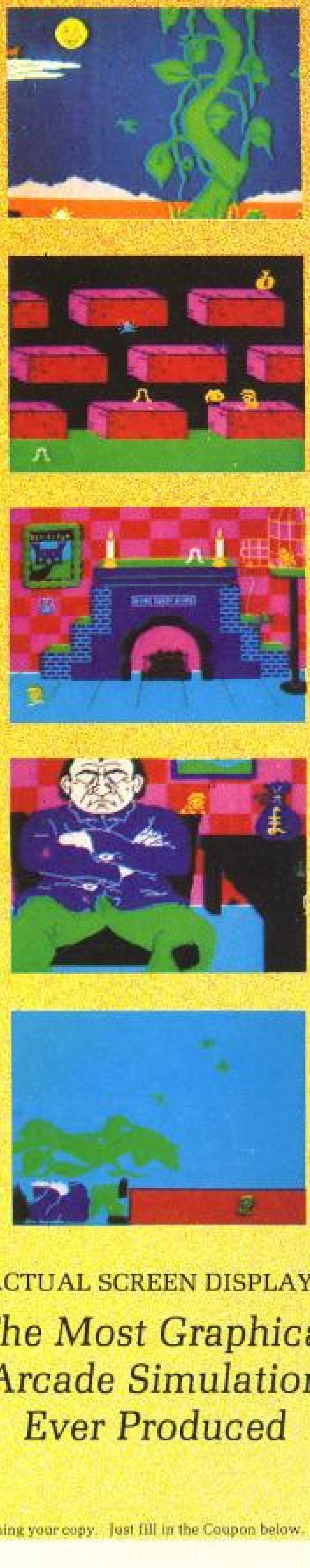
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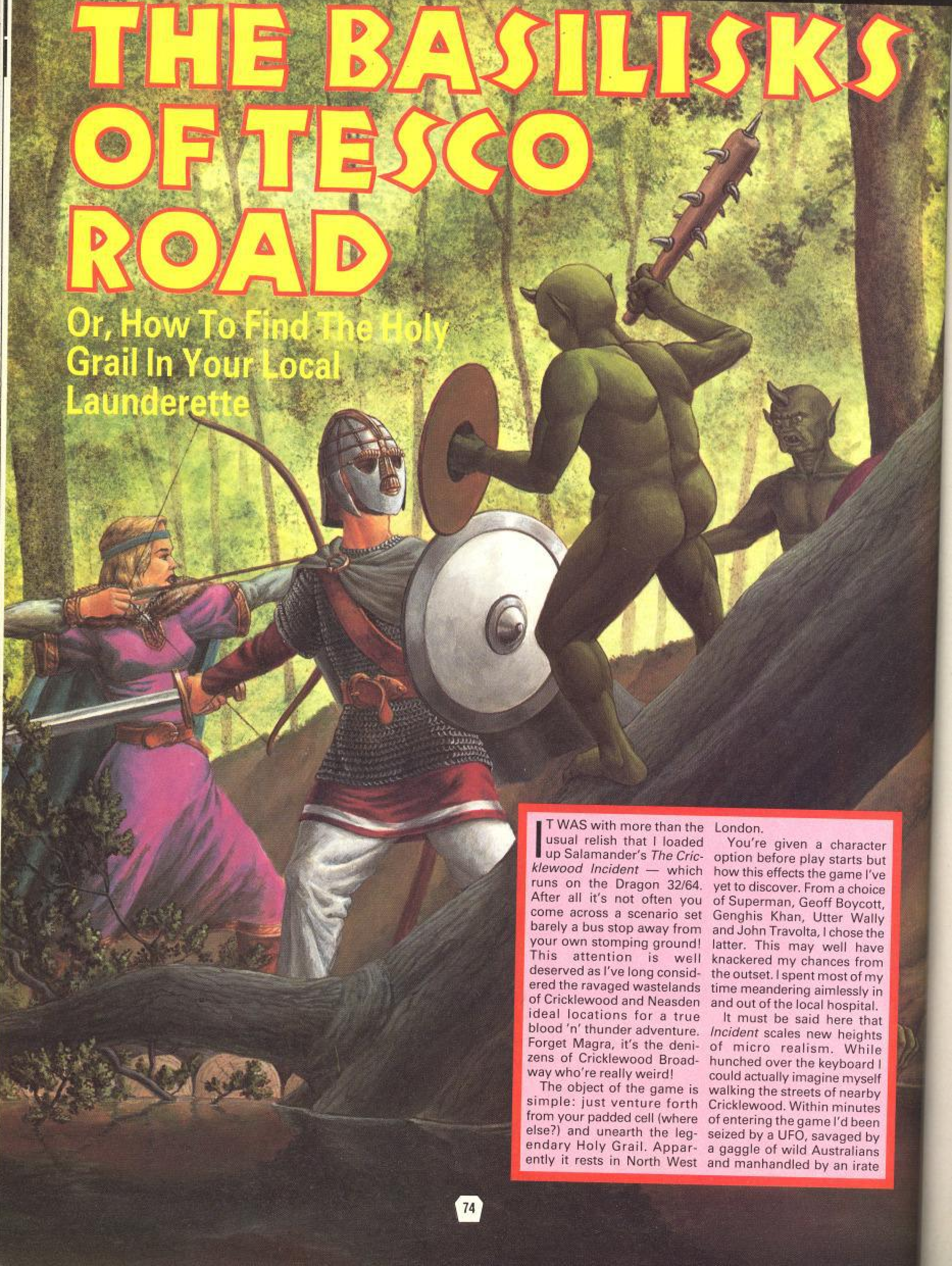
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THE BASILISKS OF TESCO ROAD

Or, How To Find The Holy Grail In Your Local Launderette



IT WAS with more than the usual relish that I loaded up Salamander's *The Cricklewood Incident* — which runs on the Dragon 32/64. After all it's not often you come across a scenario set barely a bus stop away from your own stomping ground! This attention is well deserved as I've long considered the ravaged wastelands of Cricklewood and Neasden ideal locations for a true blood 'n' thunder adventure. Forget Magra, it's the denizens of Cricklewood Broadway who're really weird!

The object of the game is simple: just venture forth from your padded cell (where else?) and unearth the legendary Holy Grail. Apparently it rests in North West London.

You're given a character option before play starts but how this effects the game I've yet to discover. From a choice of Superman, Geoff Boycott, Genghis Khan, Utter Wally and John Travolta, I chose the latter. This may well have knackered my chances from the outset. I spent most of my time meandering aimlessly in and out of the local hospital.

It must be said here that *Incident* scales new heights of micro realism. While hunched over the keyboard I could actually imagine myself walking the streets of nearby Cricklewood. Within minutes of entering the game I'd been seized by a UFO, savaged by a gaggle of wild Australians and manhandled by an irate



Hell's Angel. An accurate simulation indeed!

The Cricklewood Incident used the standard Salamander formatted text display and enjoys reasonable response times. Along with the usual onscreen bumf there's a health tag (I spent most of the time in an advanced state of despair) and a money box. To successfully complete the adventure you're going to need quite a bit of cash, so try and keep those tills ringing. I invariably left the thing penniless.

A GOOD deal less zany is *The Lords Of Midnight*, a heavy duty phantasy from Beyond Software. It's rapidly amassing a huge army of admirers, and with good reason. Superbly designed and marvellously executed, it's definitely one to impress the cat with. But considering the lack of traditional input procedures, can it truly be classed as an adventure?

Well yes, I think it can. Having entered the realms of Midnight you can't help but feel a sense of awe and puzzlement. Moving within the game is truly an exploration of the unknown. All are archetypal symptoms of a good adventure. So the format of the thing is pretty irrelevant in my book.

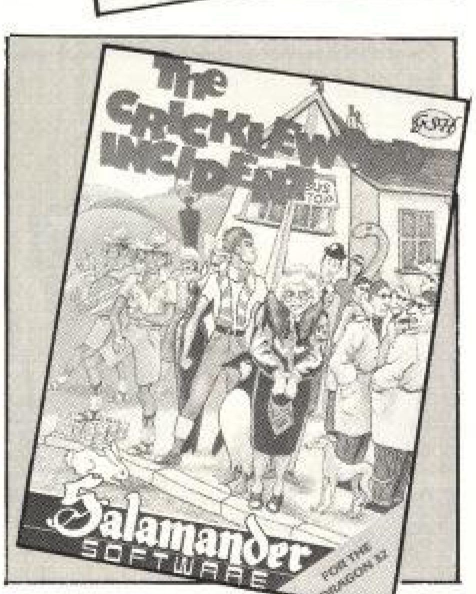
Although it's early days yet, it's worth noting that Doomdark's foul hordes invariably march through the mountains of Ithril and so into the Plains of Blood, so it's clearly possible to avoid his hellish minions and launch an attack on Ushgarak from the rear! (*Kindly re-phrase that, Keaton — **Ed.***) Should you Doomdark devotees discover anything else of note while exploring the land of Midnight, be sure to drop me a line, OK? This one's set to run and run.

While we're dispensing help (of a sort) I must say that I've been deluged with requests for tips on *Valhalla*. Well, my tip is — don't buy it! As a piece of coding it's a marvel, but as a game . . . it sucks. For the same money you could pick up *Africa Gardens* (from Gilsoft) and *Temple of Vran* (from Incentive) and still have a couple of quid left over for some issues of *2000AD*. Much better value.

Oric Atmos owners are currently rather poorly served in the adventure field, so it's perhaps fortunate that some of the early BASIC offerings for the Oric 1 still run quite happily on the new (sic) machine. The most familiar of these is *Zodiac* (and its follow up *House of Death)* from Tansoft. Although heavily criticised for their relative simplicity, I rather like 'em. Both based around old dark houses and involving a quest for hidden treasure, they share a nice line in humour and some high quality scripting. The quote of locations may be meagre but they're finely drawn. A pity they're shamelessly overpriced.

Tansoft are also set to release *The Kilburn Incident* (currently under wraps but obviously along the lines of Salamander's Dragon hit) sometime soon, and Quicksilva have converted Derek Brewster's smashing *Velnor's Lair*, which we looked at some time ago. Both should go someway to placating your hungry Atoms.



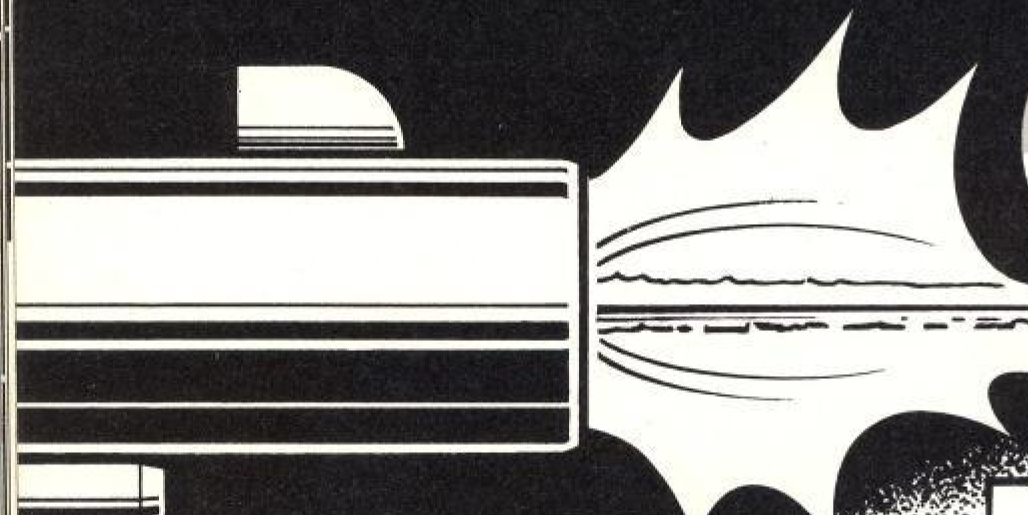


A great adventure is...

"A totally original plot; a wide range of interesting locations; new problems to solve and a variety of other characters available for helping or hindering the player. A good Adventure should be written in at least 32K of memory, as anything less is inadequate for storing the vast amounts of data used in the game. A game which is advertised as having "full screen graphics" or "a graphical representation of each location" is not necessarily better than the original text-only Adventures. Graphical Adventures seem to be the "in thing" at the moment, but it is often found that the programmer will sacrifice memory which could be used to make the game more complex, just for drawing a colourful picture on the screen. For me, an Adventure which has excellent verbal descriptions of all locations is just as good — if not better — than one with multi-coloured graphics and sound."

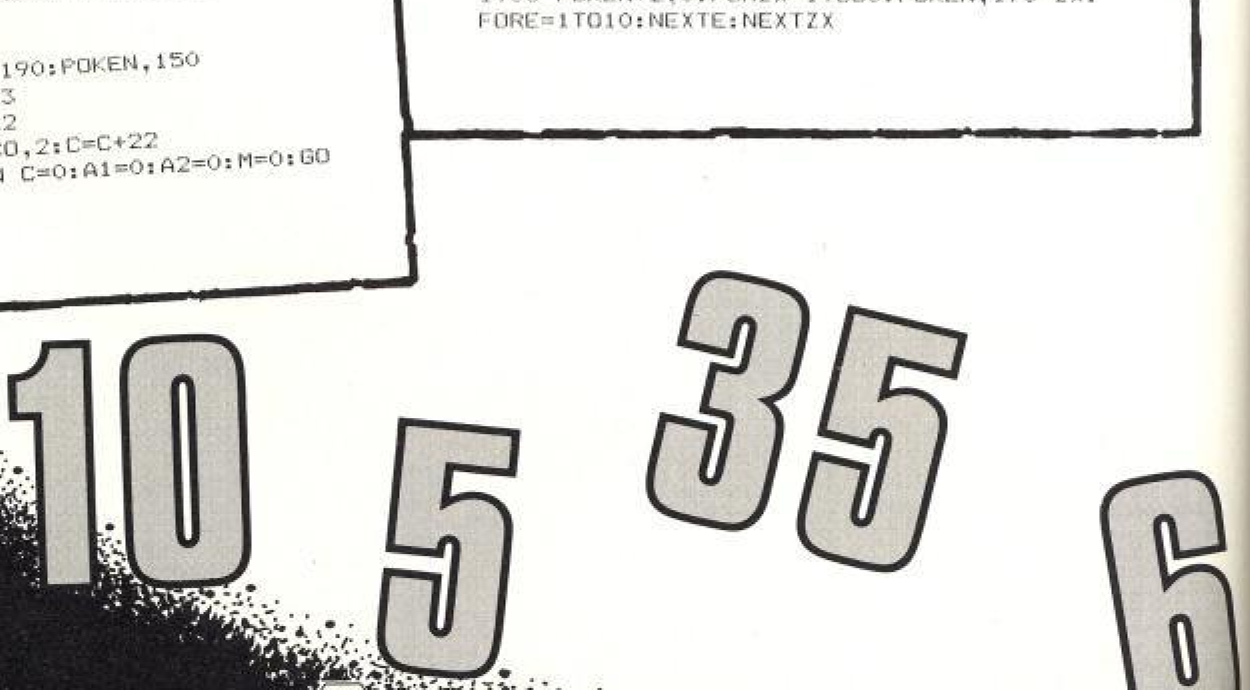
SIMON BIRCHALL

Other contributions welcome.



CROS

```
1 REM ***************
2 REM * CROSS FIRE *
3 REM * E.MCRACKEN *
4 REM ***************
10 CLR:PRINT"{CLR}{RED}":SC=0:SH=6:MU=2:
GOSUB 2000
12 G1=7903:G2=7918:V=36878:N=36875:CO=30
720:A1=7926:A2=7939
13 FORG=7922TO7925:POKEG,160:POKEG+CO,0:
NEXT
14 FORG=7940TO7943:POKEG,160:POKEG+CO,0:
NEXT
15 POKEG1,66:POKEG1+CO,0:POKEG2,66:POKEG
2+CO,0
16 X=INT(RND(1)*255)+1:POKE37879,X:POKEV
,15
17 IFMU=1THEN GOTO 20
18 GOSUB 1000
20 PRINT"{HOME}GUN 1='Z'"
21 PRINT"{HOME}{CUR DN}GUN 2='X'"
22 PRINT"{HOME}{CUR RT}{CUR RT}{CUR RT}{
CUR RT}{CUR RT}{CUR RT}{CUR RT}{CUR RT}{
CUR RT}{CUR RT}{CUR RT}SCORE"SC:SH=SH-1
23 PRINT"{HOME}{CUR DN}{CUR RT}{CUR RT}{
CUR RT}{CUR RT}{CUR RT}{CUR RT}{CUR RT}{
CUR RT}{CUR RT}{CUR RT}{CUR RT}SHOOTS"SH
:GOSUB 90
24 GETS$:IFS$="Z"THEN M=1
25 IFS$="X"THEN M=2
26 IFSH=0THEN 3000
27 IFM=2THEN POKEN,199:GOTO 40
28 IFM=1THEN POKEN,199:GOTO 30
29 GOTO 24
30 A1=A1+1:POKEA1,64:POKEA1+CO,0:GOTO 50
40 A2=A2-1:POKEA2,64:POKEA2+CO,0
50 IFPEEK(A1+1)=64THENPOKEA1+1,114:GOTO
60
51 IFPEEK(A2-1)=64THENPOKEA2-1,114:GOTO
60
52 POKEN,0:GOTO 24
60 POKEN,0:POKEN+2,190:POKEN,150
61 IFM=2THEN C=A1+23
62 IFM=1THEN C=A2+22
70 POKEC,93:POKEC+CO,2:C=C+22
71 IFPEEK(C)=93THEN C=0:A1=0:A2=0:M=0:GO
TO 1900
73 IFPEEK(C)=48ORPEEK(C)=49 THEN SC=SC+1
0:A1=0:A2=0:M=0:C=0:GOTO 1950
75 IFPEEK(C)=50 THEN SC=SC+2:A1=0:A2=0:M
=0:C=0:GOTO1950
77 IFPEEK(C)=53 THEN SC=SC+5:A1=0:A2=0:M
=0:C=0:GOTO 1950
79 IFPEEK(C)=51ORPEEK(C)=54THEN SC=SC+36
:A1=0:A2=0:C=0:M=0:GOTO1950
80 GOTO 70
90 F=0:F=INT((4-1)*RND(1))+1
91 ON F GOTO 92,93,94,95
92 PRINT"{CUR DN}{CUR DN}{CUR DN}{CUR DN
}{CUR DN}{CUR DN}{CUR DN}{CUR DN}{CUR DN
}{CUR DN}{CUR DN}{CUR DN}{CUR DN}{CUR DN
}{CUR DN}{CUR DN}{CUR DN}{CUR DN}{CUR DN
}{CUR DN}{CUR RT}{CUR RT}{CUR RT}{CUR RT
}{^-}{^-}5{^-}36{^-}10{^-}10{^-}{^-}{HOM
E}":RETURN
93 PRINT"{CUR DN}{CUR DN}{CUR DN}{CUR DN
}{CUR DN}{CUR DN}{CUR DN}{CUR DN}{CUR DN
}{CUR DN}{CUR DN}{CUR DN}{CUR DN}{CUR DN
}{CUR DN}{CUR DN}{CUR DN}{CUR DN}{CUR DN
}{CUR DN}{CUR RT}{CUR RT}{CUR RT}{CUR RT
}{^-}{^-}36{^-}2{^-}2{^-}5{^-}5{^-}{^-}{
HOME}":RETURN
94 PRINT"{CUR DN}{CUR DN}{CUR DN}{CUR DN
}{CUR DN}{CUR DN}{CUR DN}{CUR DN}{CUR DN
}{CUR DN}{CUR DN}{CUR DN}{CUR DN}{CUR DN
}{CUR DN}{CUR DN}{CUR DN}{CUR DN}{CUR DN
}{CUR DN}{CUR RT}{CUR RT}{CUR RT}{CUR RT
}{^-}{^-}10{^-}10{^-}5{^-}10{^-}{^-}{HOM
E}":RETURN
95 PRINT"{CUR DN}{CUR DN}{CUR DN}{CUR DN
}{CUR DN}{CUR DN}{CUR DN}{CUR DN}{CUR DN
}{CUR DN}{CUR DN}{CUR DN}{CUR DN}{CUR DN
}{CUR DN}{CUR DN}{CUR DN}{CUR DN}{CUR DN
}{CUR DN}{CUR RT}{CUR RT}{CUR RT}{CUR RT
}{^-}{^-}10{^-}2{^-}10{^-}36{^-}{^-}{HOM
E}":RETURN
1000 KL=0:PO=0:CM=0:MU=1:FORPO=0TO12:REA
DKL:POKEN,KL:FORCM=1TO100:NEXTCM:NEXTPO
1010 DATA175,183,191,183,191,183,175,183
,191,195,175,175,0
1020 RETURN
1900 POKEN+2,0:FORZX=1TO50:POKEN,170-ZX:
FORE=1TO10:NEXTE:NEXTZX
```



SSFIRE

For VIC 20
By E. McRACKEN

It's the old double-gun routine. Shoot from both sides of the screen, where the bullet trails meet a line drops into a high score box. It's a test of skill and reflexes for one or two people.

WARNING: This is a TRANSLATED listing. Instructions in 'wavy' brackets should NOT be typed in but followed, i.e. CUR RT = cursor right.

```
1910 PRINT"{CLR}":GOTO12
1950 POKEN+2,0:FORZX=1TO50:POKEN,120+ZX:
FORE=1TO10:NEXTE:NEXTZX:POKEN,0
1960 PRINT"{CLR}":GOTO 12
2000 PRINT"{HOME}{CUR DN}{CUR DN}{CUR RT
}{CUR RT}{CUR RT}{CUR RT}{CUR RT}{CUR RT
}CROSS FIRE"
2010 PRINT"{CUR RT}{CUR RT}{CUR RT}{CUR
RT}{CUR RT}{*Y}{*Y}{*Y}{*Y}{*Y}{*Y}{*Y}{
*Y}{*Y}{*Y}{*Y}{*Y}"
2020 PRINT"{CUR DN}THE OBJECT OF THE GAM
E";
2030 PRINT" IS TO SCORE AS MANY"
2040 PRINT" POINTS AS YOU CAN BY"
2050 PRINT" SHOOTING AT A TARGET"
2060 PRINT" AT THE BOTTOM OF THE"
2070 PRINT" SCREEN. YOU HAVE TWO"
2080 PRINT" GUNS EACH SIDE OF THE";
2090 PRINT" SCREEN ABOVE THE"
2100 PRINT" TARGET AND YOU MUST"
2110 PRINT" FIRE EACH ONE. WHEN"
2120 PRINT" THE SHOTS MEET THAY"
2130 PRINT" WILL MOVE DOWN THE"
2140 PRINT" SCREEN AND HIT THE"
2150 PRINT" TARGET."
2160 PRINT"{RVS ON}{CUR DN}{CUR RT}{CUR
RT}{CUR RT}{CUR RT}{CUR RT}{CUR RT}HIT A
 KEY"
2170 GETW$:IFW$=""THEN 2170
2180 PRINT"{CLR}":RETURN
3000 PRINT"{CLR}{CUR RT}{CUR RT}{CUR RT}
{CUR RT}{RED}{CUR DN}{CUR DN}{CUR DN}{CU
R DN}YOU SCORED";SC
3010 PRINT"{CUR RT}{CUR RT}{CUR DN}{CUR
DN}{CUR DN}{CUR DN}ANOTHER GO?(Y/N)"
3020 GETRS$
3030 IFRS$="Y"THEN GOTO 10
3040 IFRS$="N"THEN PRINT"{CUR DN}{CUR DN
}{CUR RT}THANKS FOR PLAYING.":NEW
3050 GOTO 3020
```

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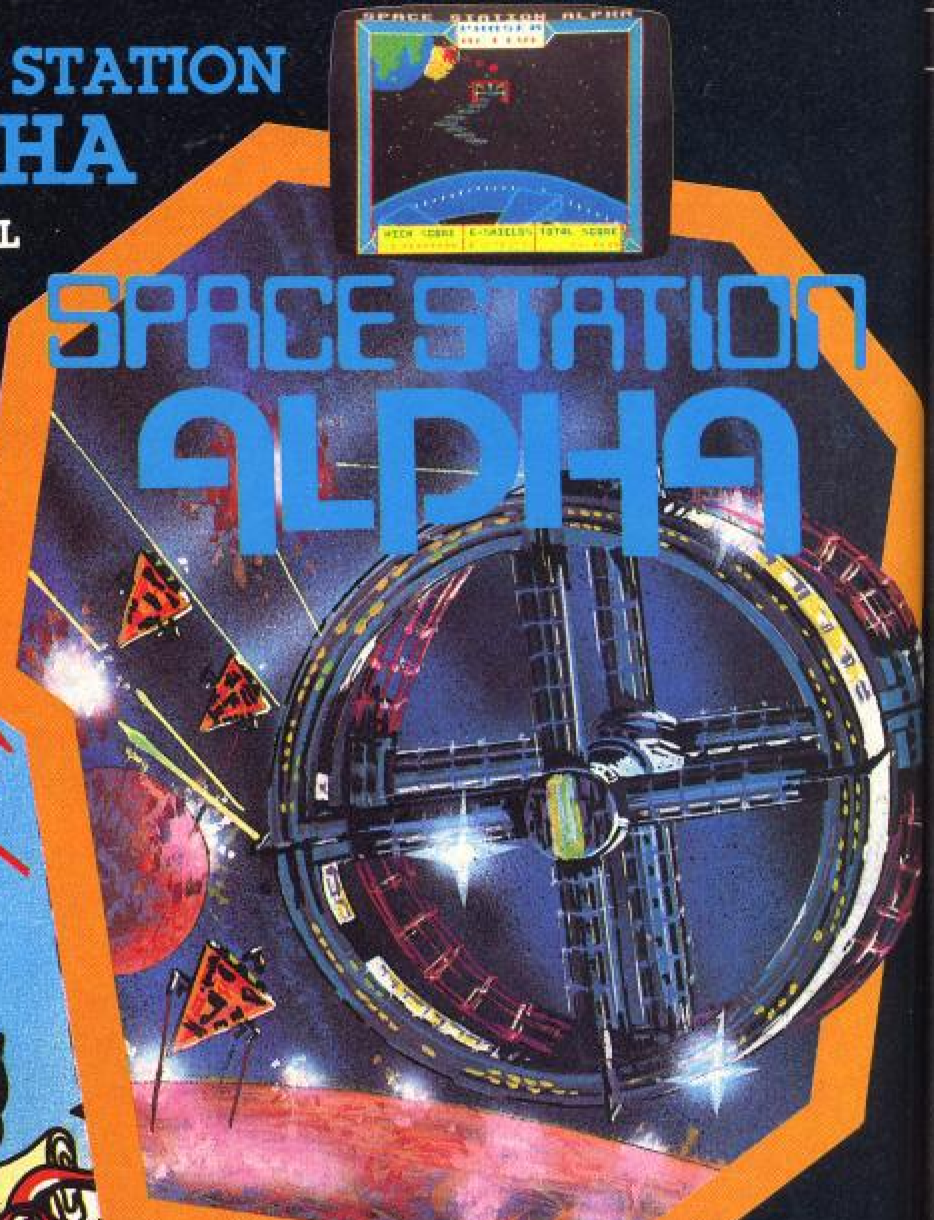
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ARTIFICIAL INTELLIGENCE IS COMING TO GET YOU

In five (or ten, or maybe twenty) years the significance of Artificial Intelligence (or Fifth Generation) will have become a lot clearer than it is today. In the meantime, it's nice to ditch the bugs, bytes and sprites for a moment and enjoy a good old speculative waffle about what it MIGHT mean. Your cue, 'Q'...

IS your micro being nasty to you? Do parking meters feel hungry when they're not fed?

Humans like to animize the inanimate. Perhaps this is one of the reasons that Artificial Intelligence holds such a fascination.

How often do you swear at your micro? Really curse the thing? Recently arcade games have been hooked up with hidden microphones to record the ways in which people "relate" to them. Many folk that would otherwise be considered legally sane often talk to machines. Humans become emotionally involved with their own personal technology by giving things names and by talking about (and to) machinery.

We all *really* know the reason the prog just crashed again has little to do with the way your micro feels about you . . . yet nearly all humans animize machines to a greater or lesser extent.

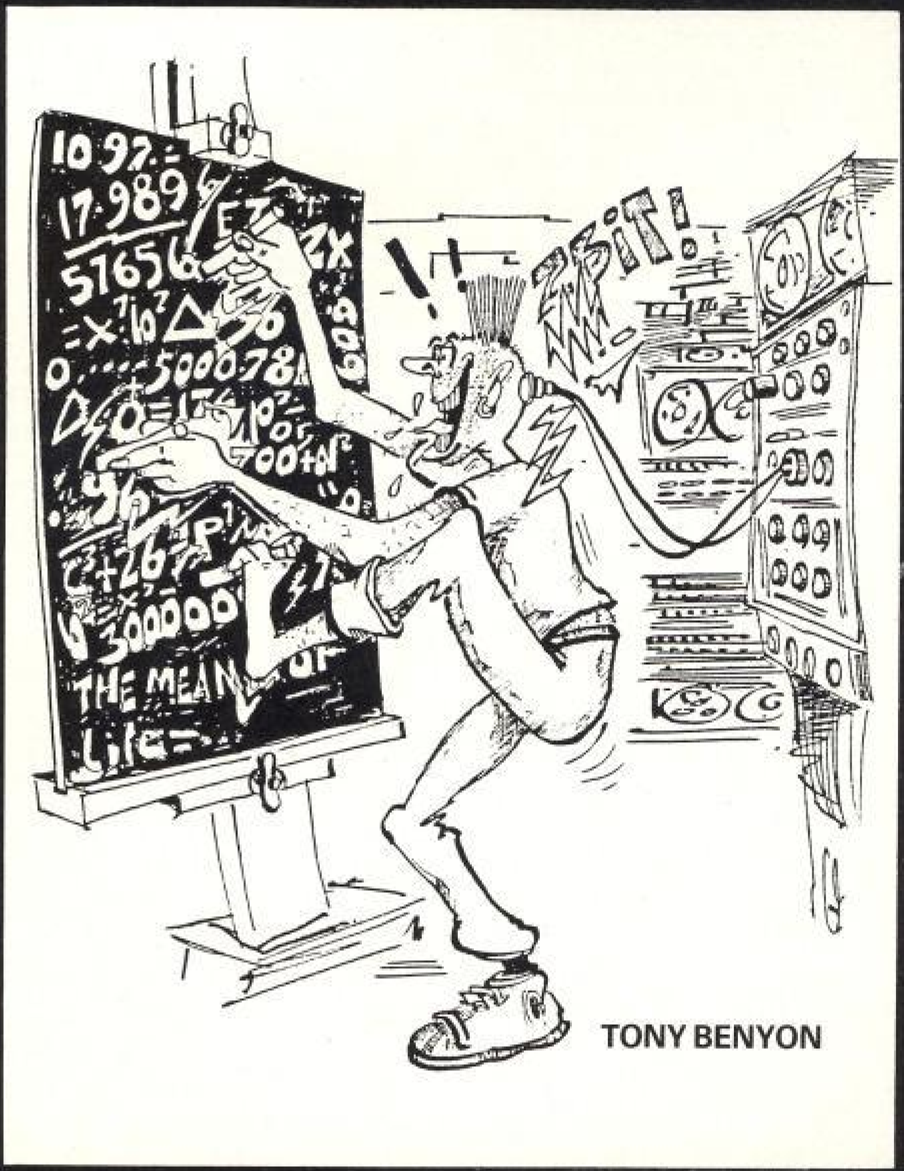
This techno-kinship can have very positive effects — many people given the choice of communicating with a machine or a person, will often prefer the machine, (cash dispensers have queues of people when banks are empty). Recently psychological "Expert" programs (more 'bout them later) have acted as "listeners" to patients' problems. Many of the users found this preferable to talking to humans and a considerable number felt that they responded more honestly to a Interactive Expert Program when answering personal questions about themselves.

Before positively defining what Artificial Intelligence is we have to define intelligence and in particular human intelligence. If a machine is to mimic human behaviour must be analysed in order to structure and devise software and hardware that mimics it. For some tasks this is now relatively easy — but for others it reaches into the realms of paradox, psychology and philosophy 'cos we dunno very much about the way our brains work, end of story. Nevertheless one part of A.I. research is devoted to finding out.

The definition of A.I. is not constant. Once a business program replaces a payroll clerk the definition of A.I. tends to go up (or is it sideways?). Machines and their software systems are the result of human ideas and actions, the transference oif thought into "physical reality"; but often, because they are built by teams, they represent a combination of ideas and these creations lead in an almost truly evolutionary way to more complex machines just as organisms evolved from amino acides (go fetch that biology book). Tracing the evolution of computers is a good case in point. In order to begin to understand human intelligence one has to understand the development of the brain and its friend, pal, or chum, the mind.

Some experts maintain that it will never be possible to construct machines to think like humans because they must be able to "relate" to themselves in the real world, i.e. they would have to possess bodies similar to humans in order to "think" like humans. ("Be" humans?)

What now does seem technically feasible is that the new "intimate technology" will increase the human love affair with machines and that for specific tasks many people will react to machines and their software systems as though they were human and that by studying this phenomenon more will be learnt about the man-machine interface.



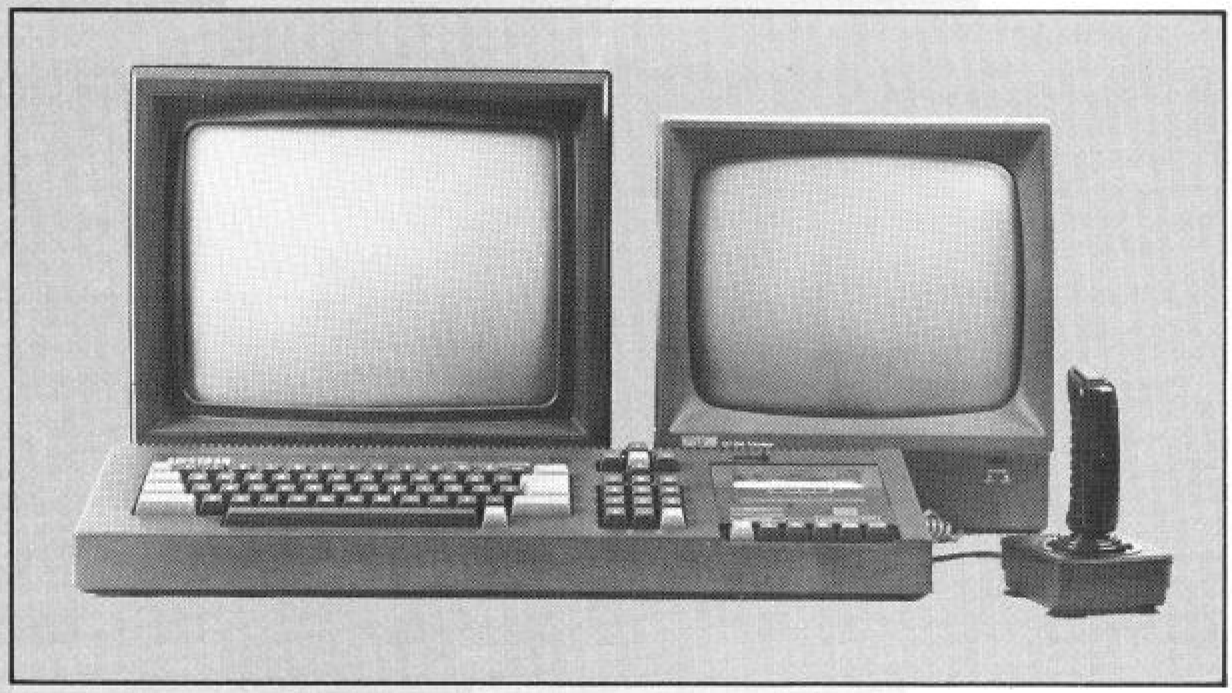
The practical application of A.I. is in the realm of the next generation of more user friendly intimate technology and one way that this is progressing is through the use of Expert Programs.

The whole area of Expert Programs is still in its infancy. These programs interrogate the expert e.g. a hearing specialist, in a particular field and then (provided this has been done with sufficient programming skill) the resultant program and database can be interactive. Most of these Expert Programs have an update facility (sometimes allowing the "nature" of the program to re-program itself) and thus such a system can be used in place of a human expert for certain tasks.

Right now A.I. ideas are being used in inter-active video disc systems which can be used in the training of skills and the merchandising of products which require explanation. Research is also taking place in speech recognition and of course into the whole area of language itself, for words only acquire meaning in a relationship with each other. How the brain extracts "meaning" from words and sentences is still very unclear. This is the area where A.I. research meets paradox in a world that seems bizarre and unreal, the world of philosophy and "quantum reality" where arguments rage about what is "real" and what is not.

NICE...BUT WILL IT AMSTRADDLE THE WORLD LIKE A COLOSSUS?

JOHN CONQUEST has a paws-on session with the Amstrad CPC 464...



BY NOW you must have heard tell of the Amstrad CPC 464 — well, that's the official name but I've not heard it called anything but 'The Amstrad'. The budget hi-fi empire's entry into the home computer field has been much heralded by the press and now that it's in the shops we're getting the bench tests, with the computer mags going into various degrees of ecstasy. The message, which you may have heard before, is that this is the greatest thing since sliced silicon.

The Amstrad is a good machine, no question. But a great one? Not really. It is, however, a great piece of marketing. Designer Richard Perry hit the nail on the head when he said, with admirable honesty and clarity, that his package was designed to compete directly with the Commodore 64, be better value than the Spectrum and cheaper than the BBC B.

INTEGRAL

As a cost accounting exercise it achieves all these targets. For £229 you can get a 64K (42K usable) computer with a built-in cassette player/recorder and loudspeaker, plus a high-res monochrome monitor. For another £100 you can have a colour monitor instead. Clearly Amstrad, learning other companies' expensive lessons, are applying the same minimum component principle that made them such a power in hi-fi. The integral program recorder, which, incidentally has two loading speeds, 1K baud and the rather chancy 2K baud Speedload, has such obvious advantages that it seems destined to become an industry standard.

Though the manual is average (i.e. better than Commodore's but not as good as Acorn's), the friendly Locomotive Basic leaves Commodore's for dead and is very fast. Other features are exceptionally sharp colours (though the claimed 27 are actually 9 with bright and pastel modes, feeble compared to Atari's 256), stereo sound via the hi-fi hook-up (extra), real-time interrupts and windows. Amstrad's £14.95 joystick is a horror, but although the single port will take any D-pin joystick, only Amstrad's will let you use two, the second plugged into the first.

The keyboard isn't as good as the Commodore's, let alone Atari's, but the initial cramped feeling would probably fade with practice. A rather feeble space bar has the Control key right next to it, which seems risky, but there's a whacking great Entry key and a separate numeric keypad.

For a new machine there's already a fair amount of software, with more coming. However, some independent software houses are expressing open concern over Amstrad's distribution policy. According to leading software company Virgin Games, Amstrad prefer that all commercial programs are regulated through Amsoft, its own software house. Independents can 'go it alone' but risk incurring the 'disapproval' of Amstrad. Virgin say that this is in complete contrast to the MSX companies who are extremely forthcoming with help and assistance so creating a better atmosphere for software production.

CO-OP

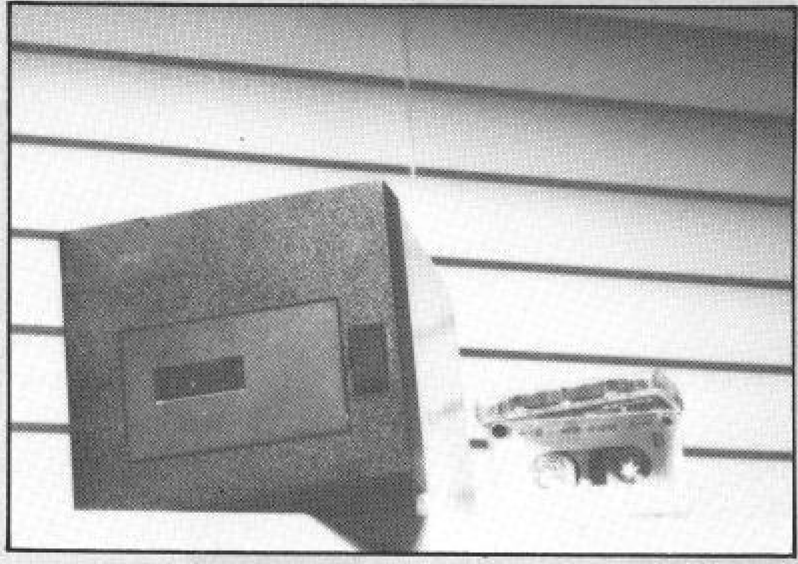
Level 9, the adventure gamers, however, have reported good co-operation from Amstrad so it appears that reaction to the new machine amongst software houses can be best described as 'mixed'. But, on the practical side, with the Amstrad's very similar Z80 engine room, Spectrum software should be very easy to convert. The present trickle could become a flood.

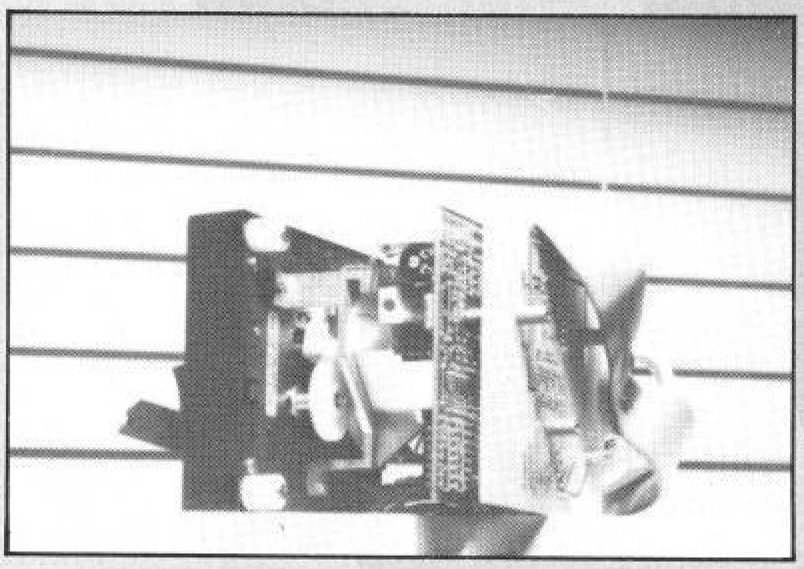
TV vs. MONITOR

My quarrel with Amstrad is the monitors, which are modified and stripped down Amstrad tellies, and not the best in the world. As monitors they're adequate, but with at least one company, Normende, making TVs that are just as good as most monitors and will let you watch Hill Street Blues as well, I can't see the point of spending money, and cluttering up my life, with yet another gadget. I'd rather the £30 modulator and power supply unit that lets you run the Amstrad through an ordinary TV.

The Amstrad has definitely jumped into the charts with a bullet and the prices and specs make it undeniably attractive. Right now I wouldn't care to be Sales Manager for 64s, Spectrums, Electrons or Ataris, let alone any of the second division machines. But I can't help feeling that it's flavour of the month. With the Elan Enterprise, not to mention the MSX machines on the horizon, the hubbub will soon die down and instead of trying to look like a world beater, the Amstrad will settle down to appealing to people who want a neat package. Which should assure it of a future.

NEAT...BUT CAN IT DENT THE DISC MARKET?





...While KIM ALDIS gets to grips with the Ikon Ultradrive, a hi-speed minicassette storage system for BBC and Dragon

CASSETTES ARE a pain in the butt, disc drives are expensive everybody knows it. But probably not so many know that there is a solution which makes a debatable compromise — a fast tape drive.

Ikon's Ultradive (for BBC and Dragon) is such a widget; faster than cassettes but slower and less expensive than discs. In fact it's more than just a fast cassette because its operating system has total control over the forward and reverse movement of the tape, enabling it to do a fast search for the file or program it's looking for.

First impressions: it looks smart. Small, cream in colour to match the BBC, a black front to it and extremely small cassettes, about two inches by one. (The young lady who purports to share my life referred to them as 'dinky'.)

SHORT SIDE

Fitting proved to be something of a pain. The EPROM went into the sideways sockets easily enough but I was definitely not happy about the cable connections. A ribbon cable runs to the user port and another to the auxiliary power socket, both on the BBC's underside — both on the short side. Short I said and short I meant. The damn things were so short that the only place to put Ultradrive was on top of the computer, right over the mains transformer and right in front of the monitor. Acorn tend to get upset by people putting things on top of their baby and my own feelings about keeping data storage media near transformers move in much the same direction. I've had trouble with disc drives when they get too close to the monitor for much the same season.

FAST LOAD

Ikon, the manufacturers, had thoughtfully provided a tape of games to demonstrate the speed at which Ultradrive operates. Not good — buried in the midst of this lot were clones (if not actual copies) of Acornsoft's *Snapper, Monsters* and Program Power's *Chess*.

So just how fast is it? To a large extent this depends on where the file is on the tape. The easiest way to demonstrate this is with a few timings. Cataloguing the first side of a tape took five seconds. Fast. Turning over to see what was on the other side proved to be a different story — nearly three minutes! This illustrates one of Ultradrive's main problems. Loading is very fast, only 15 seconds for *Monster's* main program to load — after it had taken over a minute to find. This, in itself is still not bad when compared to cassettes but it is possible for Ultradrive to take much longer. The problem lies in the fact that it has to look at the catalogue before it knows where to look on the tape. Consider a worst possible case where the tape is wound fully forward and the program you want to load is also at the end of the tape. Three minutes are spent twiddling thumbs until the catalogue is found, followed by a further three minutes while it goes back to the end of the tape to load. Admittedly this is a worst case but if you think about it it's not that unusual. Supposing you're working on a piece of software. Being a naturally cautious person you save your program at regular intervals in case it decides to do a suicide number. Every time you save it Ultradrive goes to the catalogue, writes the filename and any other garbage it needs then goes to wherever your program is to save it. This process repeats itself every time a load or save is made. Unless you make a point of using a new tape so your program is right next to the catalogue the time saving is very little when compared to cassette.

I definitely didn't like the utilities. One or two of these (REWIND, CAT, SWAP — for swapping loops) are on Ultradrive's ROM. Unfortunately, like the Acorn DFS, the most often used commands, RENAME, DELETE, ACCESS and INFO, are on the utilities tape — slow and inconvenient to get at. To be of any real use they should be accessible from ROM where they can't interfere with anything.

CHEAPER

By way of summary, Ultradrive is reasonably good but it could be better. The main flaw is in the design of the operating system without resident utilities. Those on tape aren't as comprehensive as they should be either; no BACKUP, COPY or COMPACT. But then I already use discs so maybe I'm being over-critical. It's easy to see that Ultradrive is better than cassette (what isn't) and at £79.95 is up to £150 cheaper than discs, once you've forked out for the DFS. It all depends on how short of cash and how long on time you are. In spite of its shortcomings it still works well.

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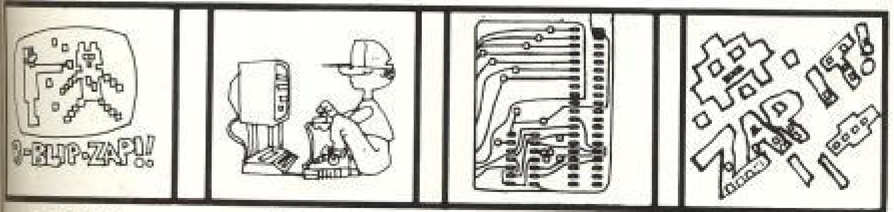
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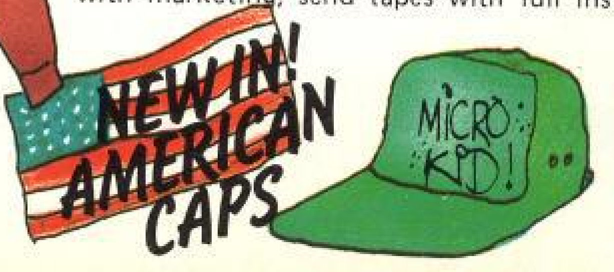
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BACK IN THE

For a whole mess of reasons America remains the hub of the computer galaxy. What happens there today may well happen here tomorrow. For this reason we've devoted a few pages to an in-depth look at the U.S. scene: pictures you haven't seen of products you may never see; American computer-games magazines under the microscope; and what must surely be the state of SOME art or other, a comic designed and printed entirely on Apple's amazing MacIntosh micro. So get some pumpkin pie outta the icebox, suck on a Dr Pepper, and get your head down. 'Cos this month BIG K is . . .

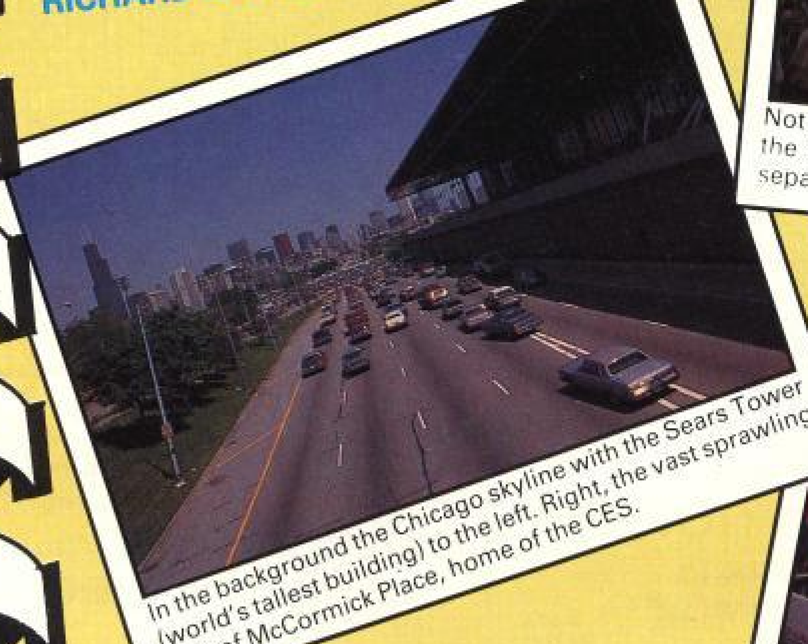
THE VIEW FROM McCORMICK WEST

Last month we reported in haste from the Consumer Electronics Show in Chicago. This month we give you . . . some of the shots and stories we didn't have room (or time) for LAST month.

PICTURES and CAPTIONS: RICHARD BURTON



Not quite a MacDonalds Golden Arch, just the entrance to the CES main exhibition hall. The whole show filled three separate buildings.



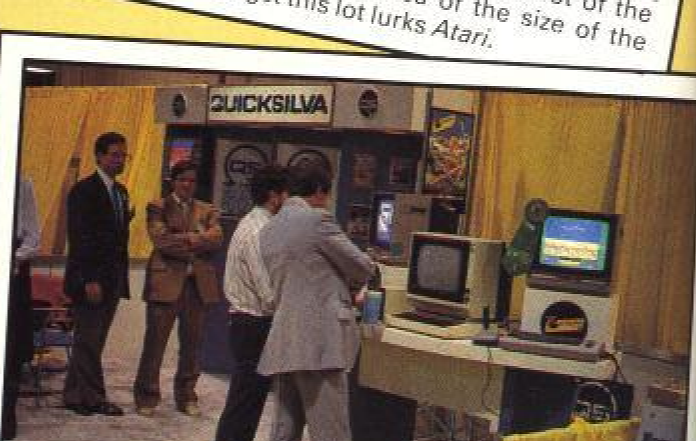
In the background the Chicago skyline with the Sears Tower (world's tallest building) to the left. Right, the vast sprawling bulk of McCormick Place, home of the CES.



The CES is not just about computers and this shot of the main floor should give you some idea of the size of the show. Somewhere amongst this lot lurks *Atari*.

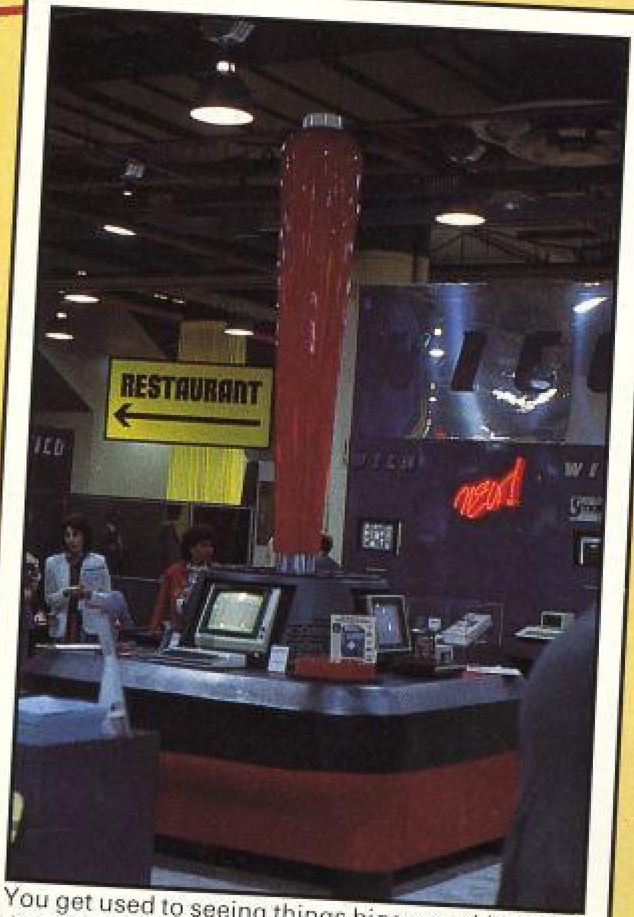


Atari have a lot of games and a lot of computers — most of them on the their stand. Imagine this little set-up in your bedroom!

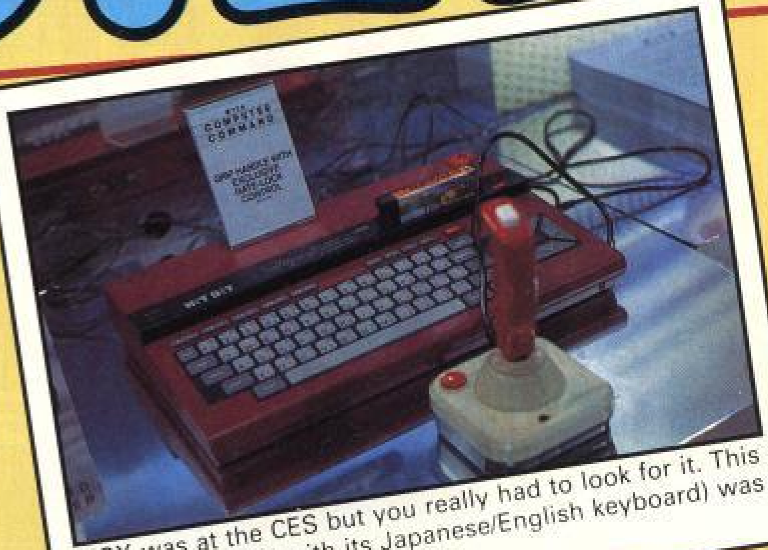


Quicksilva? Virgin Games? A Beeb? Can this really be Chicago? Yep, sure is, pard, and this here's where them Brits try to teach as about video games. Dang nerve!

U.S.A.



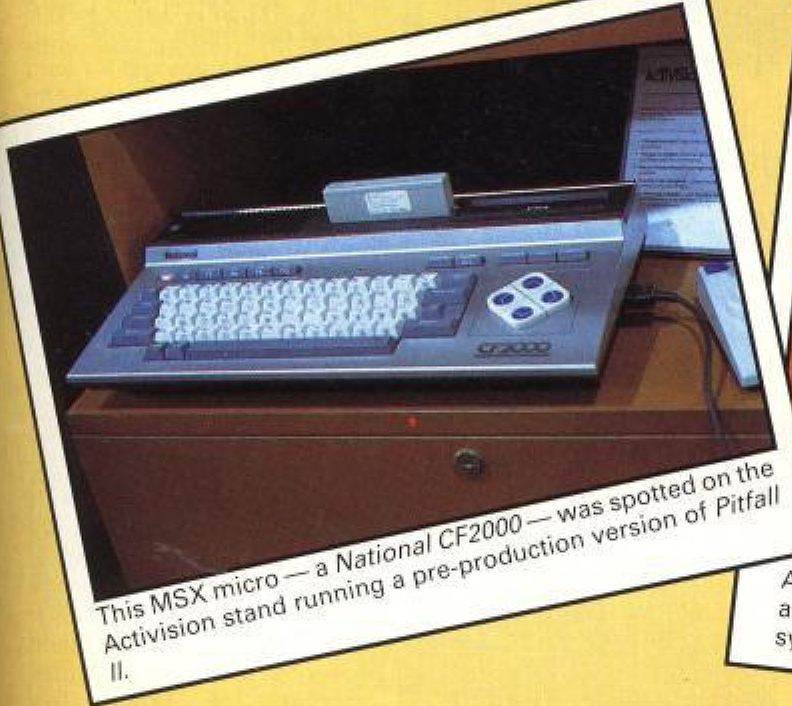
You get used to seeing things bigger and (sometimes) better in America, including a giant *Wico* joystick. All suggestions for games that can be played with this joystick to BIG K.



MSX was at the CES but you really had to look for it. This *Sony Hit Bit* (still with its Japanese/English keyboard) was sighted on the *Wico* stand.



A genuine ROM-based MSX game — Konami's *Child Park*, a typically oriental game owing more than a little to Activision's *Pitfall* in places.



This MSX micro — a *National CF2000* — was spotted on the Activision stand running a pre-production version of *Pitfall II*.



Seen for the first time, new add-ons for Coleco's *Adam* computer: A 5¼" disc drive, a second *Digital Data Drive*, a 64K *Memory Expander*, and more. Coleco are heavily backing their much-criticised computer system. Will it work?

CAN 20 MILLION VCS OWNERS BE WRONG?

Not on your life, matey, to judge by the profusion of U.S. computer-game magazines — most of them really video-game mags at heart . . . TONY TYLER peruses a sample of BIG K's transatlantic opposition.

A QUICK glance at the American computer press tells you a lot about the origins of our own version. Like microprocessor technology itself microcomputer magazines originated over There and subsequently appeared over Here, already having acquired a form of recognised identity.

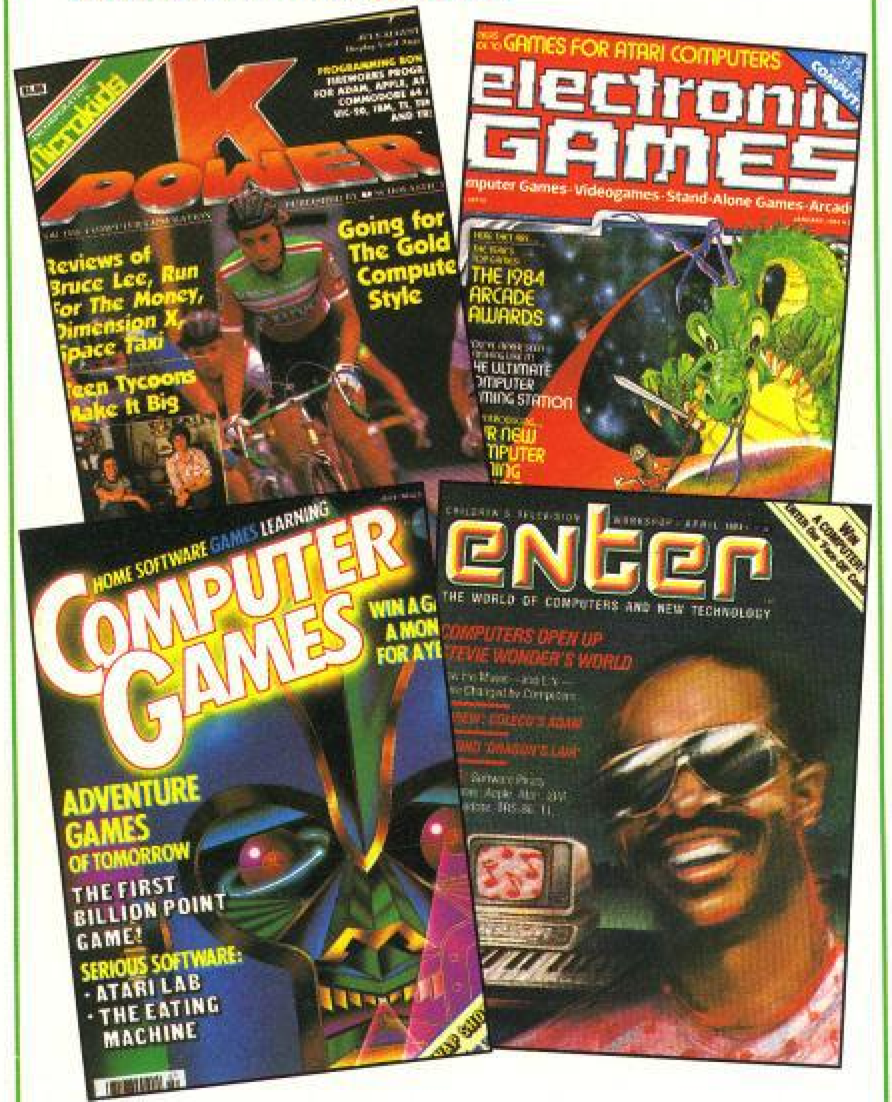
That the model has been US-defined becomes apparent by a quick glance at, say, *Byte*. *Byte*'s obvious editorial aim is to rule the world (which they all but do already, to judge by the thickness of their issues). Their chosen slant is the Authoritative shtick. Clinical, clearly laid-out and above all voluminous, *Byte* sails placidly along on a sea of immense knowledgeability, prestige, and considerable advertising revenue. It is the very model of a modern micro magazine.

Also with a good reputation among magazine buyers in the UK are *Compute!* and *Creative Computing*, both of which take a more relaxed editorial line, aiming generally to the "left" of *Byte* in their (equally calculated) unstuffiness, cheerful layouts, and air of calm, knowing, expert, fair minded, hippie self-confidence.

Although with a few minor exceptions these three are the US computer magazines most highly rated in the UK in fact there are a very great number of other, not too different magazines, many of which never get distributed here. But to say many of them are unlike anything you've seen before would be to overstate matters. There are: business machine magazines; general computing magazines; hand-held personal computer magazines; soft magazines; dedicated-machine magazines; educational titles, and game magazines.

There are a *lot* of game magazines, actually.

As we all have our definition of games magazines let me say I mean magazines who deal with "recreational computing"; any use of a computer or computer-like object to do anything spectacular and involving, *not* already defined as either Business or Educational. Leaving it at that (for now) in the UK, what do we find in the US? Proportionally nearly three times as many games magazines. And for this you can blame the Atari VCS and other videogame machines.



The fact is that, for Americans, the Age of the Computer began with the Atari VCS — later on with the Intellivision, the Odyssey, the Sega and of course the Coleco as well. As a result they underwent an entirely separate stage — the great VCS Diversion. By committing millions of potential one-time buyers to games consoles, the salesmen ensured that the real computer revolution in America would come, for the average American family, at least a year late as a result.

Videogame culture — as a genuine and recognised precursor to full-blown computer culture — began with Atari, lives on — still — with ColecoVision, and in its two years of unchallenged monopoly has spawned several videogame magazines. Examples are *Electronic Games, Electronic Fun, Joystick* (since defunct), and *Vidiot* (ditto) to name just a few better-known.

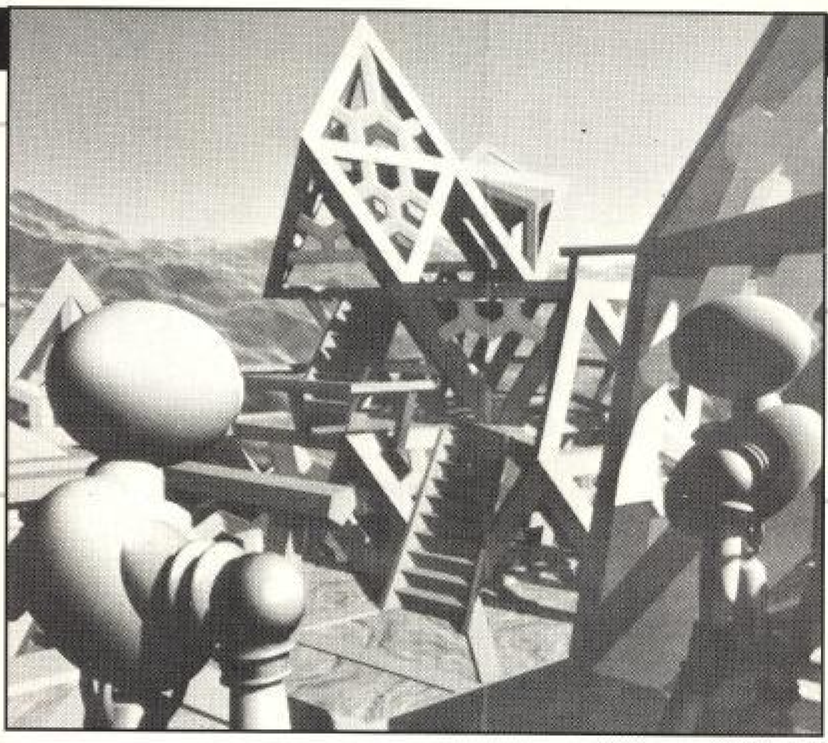
The arrival (willy-nilly) of the US computer revolution has meant that survivors have had to consider becoming keyboard conscious, in mid-stream as it were. *Electronic Games* has for some time now printed short utility programs for the US-favoured computers. But chiefly because they daren't abandon the huge US videogame ownership, even "Junior Computer" mags continue to review and support videogame stuff wholeheartedly. Apart from that a list of their contents would sound familiar enough to British ears: general features; software reviews; some hardware; standalones (big business in the US), and arcades. To this add occasional very short utility programs for the half-dozen most popular computers; equally short games listings; and movie/TV reviews where appropriate. It all sounds recognisable enough stuff. On paper.

But there are differences. American games mags carry far less advertising than their British cousins, in general have less pages and cost a good deal more.

One thing you get for your money is full colour throughout; and I guess they need the money since they all have staffs about three times the size of British magazines. Artwork in these magazines is often (though not always) superb. Above all the flavour is American.

ELECTRONIC GAMES Monthly; $2.95

The doyen, fatter than ever now since the demise of its chief rival. Original launch diet (videogames, arcades, standalones) still predominates, though computer features have been increased over the last year or so. Specialises in imaginative reviewing — every feature in



EG is almost certain to be a review of some sort — often using artwork to romanticise the limitations of the writing (a little too Gee Whiz in places, gang!) Averages 132 pages per issue, of which (in our sample) 44 were advertisements.

Verdict: The definitive videogamer's magazine. Will take the Pro 7800 seriously.

COMPUTER GAMES
Monthly; $3.00

Like *EG*, *CG* aims squarely at VCS country. ("We're talking about those ten-year-olds", a company rep recently told our man in Chicago). Half the number of pages of its rival and correspondingly less advertisements. Nevertheless paper quality is excellent and of course full colour predominates. Layout is cheerful and uneconomical by British standards. Like *EG*, uses The Review as all-purpose feature device. No computer programs whatever — wholly a software buyer's magazine. Good writing; especially good letters.

Verdict: smart, a bit padded, good print job, may find life tough if videogame market continues to go down the tube as predicted.

K POWER
Monthly; $1.95

Our American namealike, one of the slimmest of our sample at 64 pages, nonetheless takes the same definite step up the evolutionary ladder (so to speak) as *EG* by featuring type-in programs for major US computers and also "support" features . . . all of this, albeit, on a very modest scale. Otherwise . . . the mixture as before.

Verdict: half-hearted; bland; untidy.

VIDEO GAMES
Monthly; $2.00

The mixture pretty much as before — *VG* (can *you* think of any unused 'G's'?) majors by a whisker on arcades, with ROM- and disc-based game reviews (in the usual various guises) predominating. Nothing for tappers at all — nothing remotely technical, in fact. Average issue 80-odd pages, the usual full colour and airy layouts. Our sample, interestingly, features a respectful interview with Nolan Bushnell and a tough, gritty, knowledgeable and utterly ruthless demolition job on the Timex-Sinclair 2068 (the US-packaged Super-Spectrum). Screen shots and nice artwork round it off.

Verdict: As Computer Games.

The above list represent the bottom rung (as it were) of our sample (in 'seriousness' terms). Next tier up finds us, as it does in the UK, among the dedicated-user magazines. These naturally exist, in great profusion, for all major machines, and many of them reach our shores to compete directly for sales with the home-grown product.

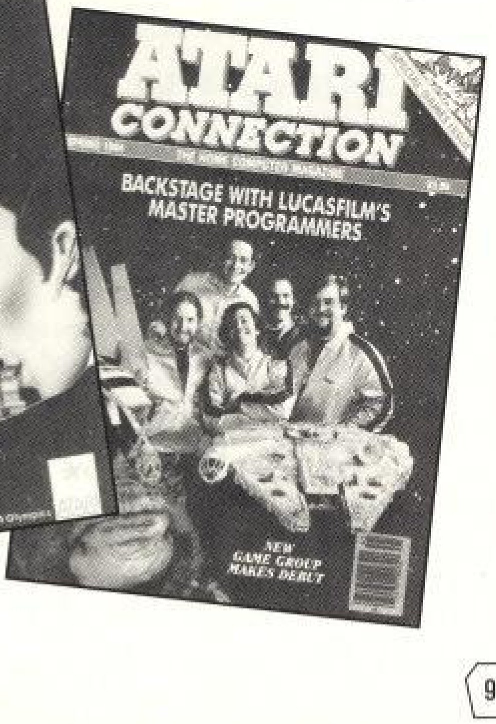
However not all of them do go on sale here. For example, Atari have magazine support in Britain, only not from American magazines. Two more Atarimags in our overall sample are *Antic*, which subdescribes itself as *The Atari Resource*(resourceful of them); and *Atari Connection* (perhaps the most uninspiring name of the whole bunch). Both are pricey at three bucks, actually well-presented and balanced, and aimed clearly at the novice (or relative novice, computer user. You expect, and get, quite long and easy programs, both games and utilities, in Atari Basic — but articles on, say, 6502, Assembler or Adventure Parsing would be wildly over the top of their mission profile. Both magazines also feature general articles, often of a 'speculative' and 'thoughtful' nature (i.e. padding).

As always it is all in four colours and on good, thick paper with a decent bit of a gloss to it. *Antic* is 100 pages, *Atari Connection* a little smaller at 80.

The single most irritating thing about all of these magazines (and there are many others we haven't even mentioned) is that as far as they and their huge readerships are concerned the words Spectrum or Acorn, Ultimate, Minter and Smith, don't mean a thing. In Britain the videogame machine was relatively slow to arrive — Sinclair's ZX80 was hard on its heels. As a result dedicated videogames never took massive root here, as they did in the States — they never had time to. Would-be computer types skipped that stage altogether and went straight into small, cheap micros, cassettes and started programming right away. It is doubtful if a purely videogame magazine could even have survived in Britain.

American computer game magazines are all intensely respectable, and for an American market, well-designed. And yet in Britain no equivalent readership is said to exist. There must be something significant in this, if I could only work out what it is.





ALAS, NO LONGER WITH US . . .

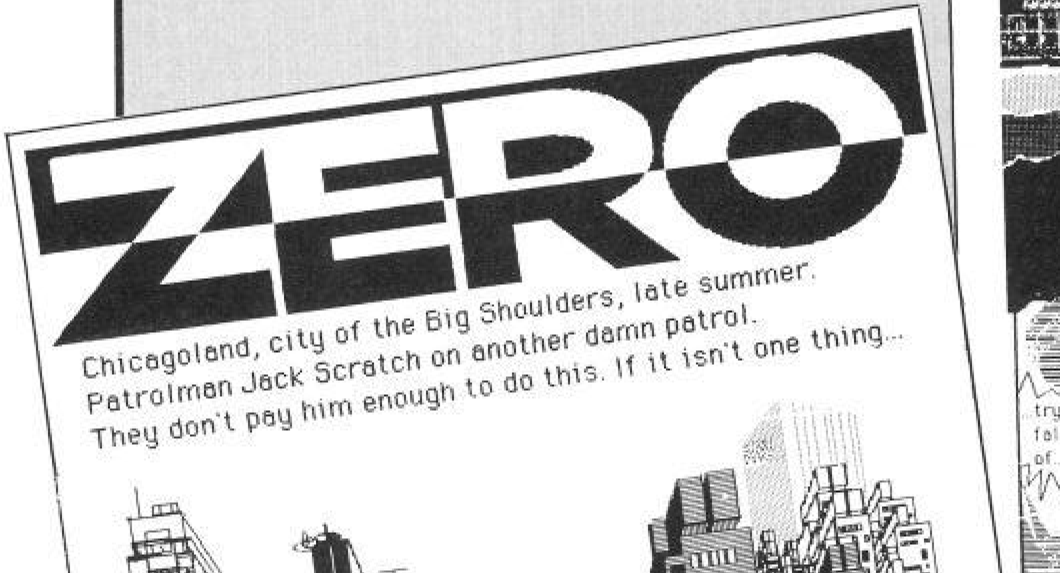
Not all of the vast range of US computer-game mags have stayed the course. One of the first, *Electronic Fun (incorporating Computer and Video Games)* transformed itself into *Computer Fun* a few months ago . . . but lasted a mere two issues. *Mikrokids* (pic), more or less the US equivalent (in content if not style) of our own dear departed *Load Runner*, merged recently with *K-Power* (see main text). It suffered, as *Load Runner* suffered, from a jovial, patronising, educational tone and was — in a word — just too juvenile for words. So down the tube it went.

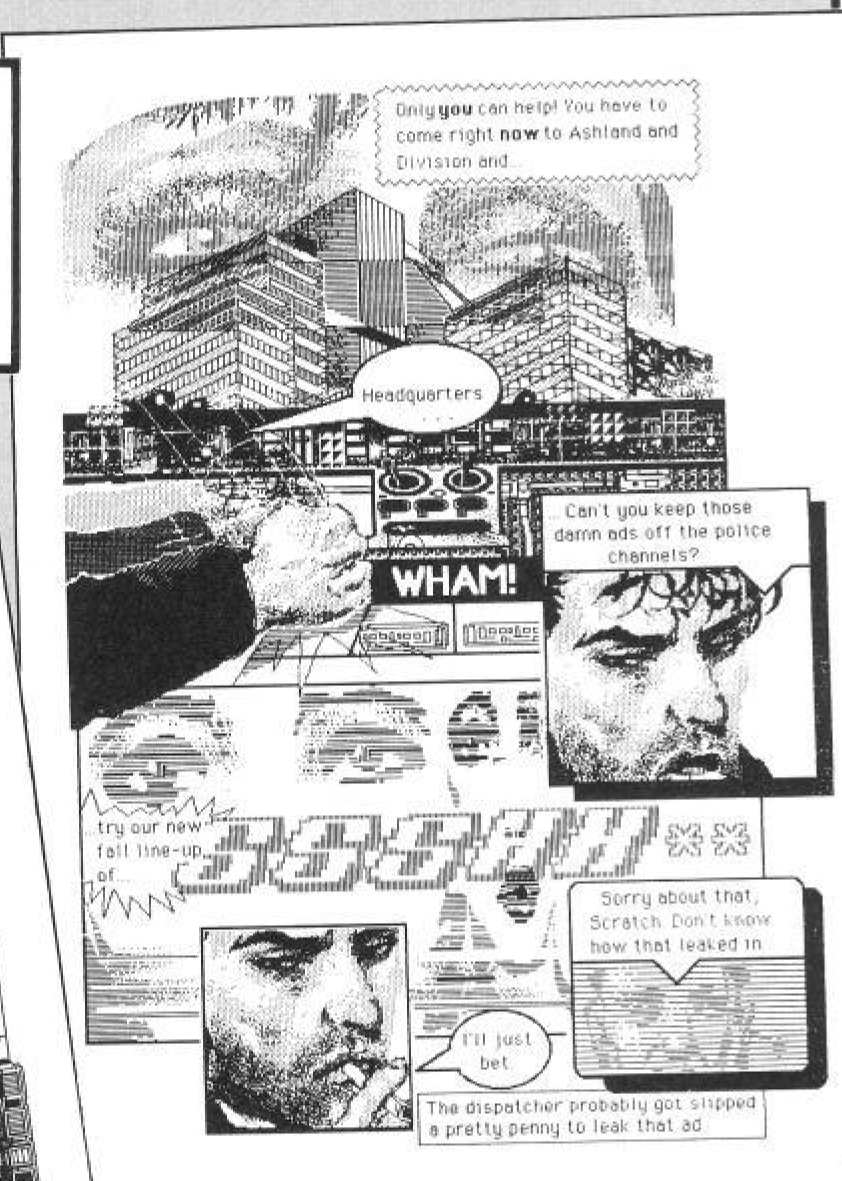


Then there was *Joystick* — in this writer's view, probably the best of the originals in both in looks and style (even if it was as videogame-dedicated as its opposition). For two years it gave *EG* and *EF* a run and half for their money, but in circulation wars there are seldom winners, only losers, *Joystick* lost.

What You See

There's only one contender — and no contest — for the USA's Computer of the Year: it's the Apple MacIntosh. And although it's only been on sale for less than six months, owners are already using it to stretch a frontier or two. BIG K's MIKE GOLD, for example, also a comics editor and originator (his day job), has discovered Project Zero, the world's first comic produced entirely on a computer, artwork and all. Here's how it was done . . .





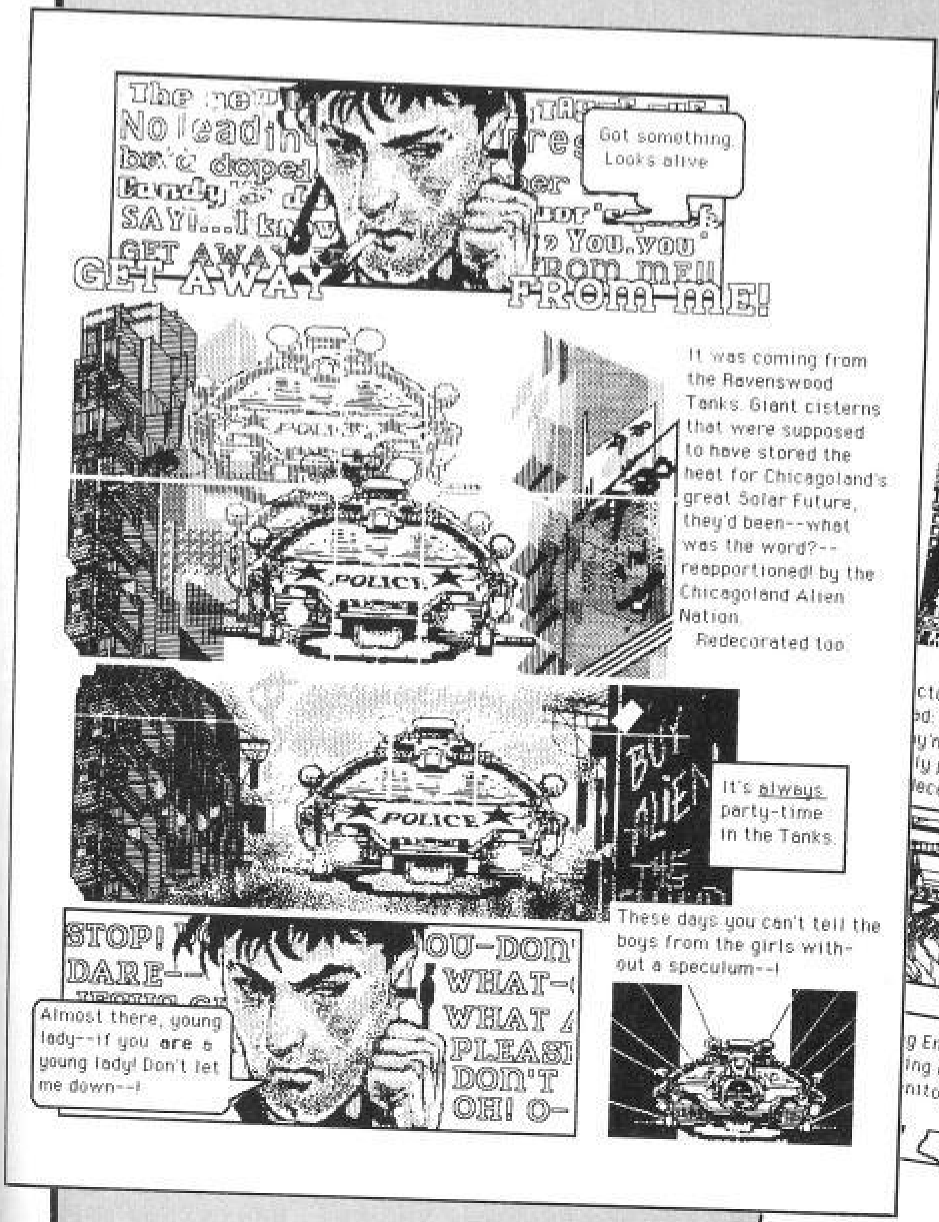
The artwork and lettering on this page was done entirely on an Apple MacIntosh computer and an Apple Imagewriter dot-

COMPUTER GRAPHICS. They're nothing new — people have been creating this sort of stuff for years. But in order to do so, they had to have constant access to a lot of expensive equipment.

Until now. In January of this year, Apple released the MacIntosh — a truly revolutionary machine. For a grown-up computer, it is relatively inexpensive. And unlike the other so-called personal computers, the Mac is totally graphics-orientated.

When the Mac came out, Apple introduced two programs: a decent word-processing package, and an extraordinary graphics package. Most people thought MacPaint was going to be fun, but of little use. After they got their

Is What You Get





matrix printer. The brainwork and design was done by Human Beings.
© M. Saenz & P. Gillis 1984.

hands on the program, they quickly changed their minds.

In the hands of painter/comics artist Mike Saenz, MacPaint became a tool to expand the sense of wonder. Saenz is best known for his work as an airbrush artist for Marvel Comics' upmarket Epic Illustrated magazine; MacPaint is about as far from an airbrush as a storytelling artist can get.

Whereas Saenz's work speaks for itself, you must remember that everything you see here was created from the ground up: nobody ever produced comics this way before. This work represents Mike's efforts after owning a MacIntosh for a mere five months.

In reviving his comic book story, Saenz turned to his friend, fellow Chicagoan Peter Gillis. A comics writer for five years, Gillis has written the adventures of most Marvel superheroes, as well as a number of characters published by leading independent comics publisher First Comics — who have shown a great deal of interest in Mike and Peter's efforts.

Their story — shown here still in development stage and only tentatively entitled *Zero* — was produced last July at the 1984 Chicago Comicon comic art convention to considerable acclaim. Fellow artists were scratching their heads, and writers, editors, and fans alike gazed upon *Zero* if they had just taken a good, hard look at the future.

They most certainly had.

ZIP CODE



HARD QUESTIONS

MIKE GOLD sums up the State of the Nations

SO *WHY* was the Consumer Electronics Show so important?

By now, you've probably been *Consumer Electronics Show*ed to death. But retailer response has a life-and-death impact upon new products — and even upon old companies.

The summer show, held in early June in Chicago, is particularly important. Whereas the winter show in Las Vegas is often better attended, the summer show allows manufacturers to unveil their goodies in time for Christmas orders. A majority of home electronics items — particularly games and low-end computers — are sold during the last three months of each year.

Now that the show is behind us, what was unveiled is no longer as important as how the retailers reacted. Will they order it? Will they push it? What are they stuck with from last year?

Of those items in the gaming and computers arena, CES-watchers had four questions:

1) Does anybody care about the so-called "dedicated machines" — those that only play games?

2) Does anybody who is not on Atari's payroll actually believe they're still in the games business?

3) Does anybody believe the Coleco Adam is worth stockroom space?

4) And if Atari and Coleco are both on the ropes, where's the action?

The answers were quite clear: no, not really, no, and Commodore.

Nobody had much interest in hardware that could only play games. Imagic stopped making game carts for all Atari, Intellivision and Coleco formats, concentrating on the C-64, with a lesser interest in Apple, IBM, and the VIC-20. The Coleco people must have been thrilled at that one: while passing over Coleco, Imagic was making software for a machine six months dead.

Indeed, only Parker Brothers and Activision were showing any real support for Atari and Coleco — and neither company put a lot of effort into the Adam. It should be noted Parker and Activision — both with some interesting-sounding games — were producing their wares in just about every conceivable format, save Sinclair. The dedicated machine is an item of the past.

Atari made a strategic mistake. The show is split up among four different buildings, with most "big boys" in the main facility. The computers and games folks had their own building, but Atari, in a typical fit of corporate megalomania, put its display in the main plant. Many retailers (or more appropriately, their games/computers buyers) never went to the big room, limiting their show leather to their own bulding. If Atari was playing Mountain, many buyers just weren't interested in coming to Mohammed.

Perhaps it was just as well. Atari's big announcement was its super new 7800 game computer, with its ability to produce almost arcade-quality graphics. Retailers who went over to their exhibit generally told me the last thing they wanted to see from Atari was another dedicated machine: "Just what I need — still another format for *Pac-Man,*" one major buyer told me bitterly.

"If Atari will advertise it, I suppose I'll have to stock it," another buyer stated. "But believe me, I'm not going to get stuck with a lot of those things in my warehouse."

No other software games manufacturer, as of this date, has announced any support for the 7800. Atari is out there all alone.

As for Coleco . . . well, it was so quiet at the huge Adam exhibit, you could hear a stockholder's blood pressure surge. There was some interest in Coleco's new software, but the Adam's an industry joke.

Coleco just might hold on, but with their basic game unit selling for $79.00, I wouldn't bet the rent on it.

So who's the winner? Commodore, hands down. But they probably don't believe it.

Everybody loves the C-64. Every software manufacturer had its games available for the C-64. All the educational stuff was being written for the C-64. Other formats had varying levels of support, but everybody — even Atari — was backing the 64.

I doubt Commodore was all that enthusiastic. Their big announcement, the "Plus/4" (the renamed C-264) met a lot of scratched heads. This new unit is not an enhanced version of the 64 — indeed, the graphics and sound are inferior. What it is, is an inexpensive computer with built-in word processor, spreadsheet, database management, and business graphics. But the Plus/4 is to these functions what your fingers are to a calculator: Anybody who needs a computer with those capabilities quickly will realise that for a couple hundred bucks more, they could buy a low-end Apple or other, similar "real computer".

But The Marketplace, the true basilica of capitalism, patted Commodore on its head and pointed at the goldmine: The Commodore 64. The machine that, in spite of its age, was the true winner of the Consumer Electronic Show sweepstakes.

Seen Better Days . . . Atari's 5200 game player, its 600XL computer, and the long-discussed AtariTel telephone terminal. Atari is making noises like they're still alive, but they haven't manufactured a 200 player since February, and the 600XL is selling like day-old hotcakes. And nobody is actually talking about AtariTel.

Also Seen Better Days . . . IBM's PCjr, and even the mighty PC itself. Nobody's buying the former, and the latter is fighting competition from every conceivable corner. IBM cut the retail price on each nearly 25%, and the PC's built-in memory had been doubled.

IBM's new PC is likely to abandon the 5¼" floppy, in favour of the 3½" Sony hard-shell discussed in Apple's Macintosh.

And while I'm on the subject, IBM was hardly pleased to discover Apple's much-ballyhooed Macintosh has become the fastest selling personal computer in history.

STATESIDE CHATTER

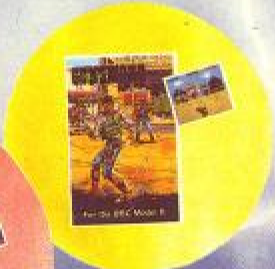
Stateside Chatter: So what did I like at the summer CES? Well, you have to take games announcements with a grain of salt — the games are rarely as great as their prototypes — but I found the science fiction novel tie-ins of interest. These include *Hitchhiker's Guide to the Galaxy* (created, in part, by Hitchhiker's author Douglas Adams), Isaac Asimov's *Robots of Dawn,* Ray Bradbury's *Fahrenheit 451,* and adaptations of novels by Arthur C. Clarke, Robert Heinlein, and Larry Niven.

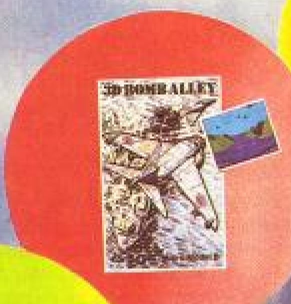
The game I'm having the most fun playing is Penguin Software's *Transylvania* . . . as written for the Macintosh. Yes, that's right — the one machine that is supposed to be useless for gamers. Well, it is great for adventure gamers, and the Mac's enhanced black-and-white graphics allows *Transylvania* for the Mac to run rings around all other versions.

Next month . . . Anything *but* the Consumer Electronics Show . . .

SOFTWARE INVASION...

Let excitement invade your home computer! Travel to Alpha Centauri. Enter the Vortex. Command the ground missiles, or join the shoot-out at the O.K. Corral!





GUNSMOKE

...the movement of the saloon-bar door was all the warning he needed! At the speed of light his hand moved toward his holster, while a sixth sense warned him of the upper floor window... 3D ACTION, SOUND EFFECTS, BEAUTIFUL GRAPHICS BBC MODEL B £7.95 CASSETTE £11.95 DISK

3D BOMB ALLEY

... the continued thunder of the hissing ground missiles had long now deafened him - unless he had some of those bombers down, the fleet, in the small stretch of water was a sitting duck... 3D ACTION, SOUND EFFECTS, BEAUTIFUL GRAPHICS BBC MODEL B £7.95 CASSETTE £11.95 DISK



ATTACK ON ALPHA CENTAURI

... he punched the key, and the control monitor filled with the picture of bug-eyed wasps attacking from their volcanic nest; decisively he dived to the left and his laser gun burst into action... 3D ACTION, EXPLOSIVE SOUND EFFECTS BBC MODEL B £7.95 CASSETTE £11.95 DISK

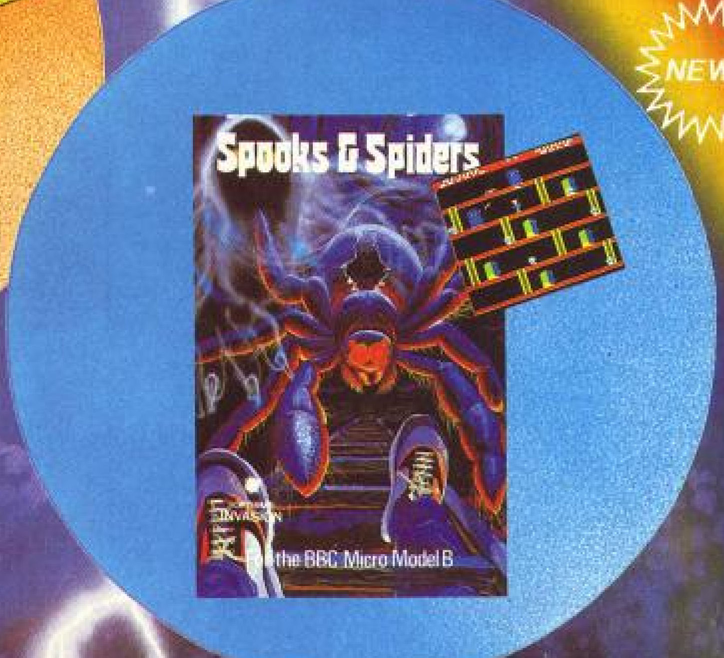




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NEW!

VORTEX

... there was no escape, he had to enter the Vortex and bet on his skills! He grabbed the manual controls and with determination fired both upper deck guns... EXCELLENT SOUND KEYBOARD OR JOYSTICK, BBC MODEL B ALSO AVAILABLE ON ACORN ELECTRON CASSETTE FOR £7.95.

EAGLES WING

. . . he glanced at his fuel levels, a few more seconds of flying time. He had to swing round through the burst of fire to reach the Docking platform, he knew, in two minutes the game could be over . . . GRAPHICS, REALISTIC COMBAT, SUPERB CONDITIONS, BBC MODEL B, £7.95 CASSETTE, £11.95 DISK.

Spooks & Spiders

. . . perhaps, very slowly, he could reach the cellar – quietly he started climbing down, his foot slipped as the giant spider dived towards him . . . SOUND EFFECTS, EXCELLENT GRAPHICS, BBC MODEL B, £7.95 CASSETTE, £11.95 DISK.

HOW TO ORDER: You may purchase any of the Games listed from most good BBC Software Stockists, W H Smiths, HMV or your nearest Spectrum Dealer.
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MORE HI-RES PRINTING

...In which RICHARD TAYLOR continues his arcane and fearfully knowledgeable series on Hi-res programming tools for Sinclair Spectrum

LISTING 1

```
 10 REM    Extension to Hi-res
 20 REM     Printing  Routine
 30 REM    By  Richard Taylor
 40 REM
 50 CLEAR 64716
 60 LET a=64717
 70 FOR l=1 TO 7
 80 LET t=0: READ v,a$
 90 IF LEN a$/2<>INT (LEN a$/2)
THEN GO TO 200
 100 FOR c=1 TO LEN a$ STEP 2
 110 LET x=CODE a$(c)-48-7*(a$(c
)>="A")
 120 LET y=CODE a$(c+1)-48-7*(a$
(c+1)>="A")
 130 POKE a,16*x+y
 140 LET t=t+16*x+y
 150 LET a=a+1
 160 NEXT c
 170 IF v<>t THEN GO TO 200
 180 NEXT l
 190 PRINT "Data OK - Now load P
rinting       Routine & Save": STO
P
 200 PRINT "ERROR in line ";990+
l*10
 210 STOP
1000 DATA 6067,"3E03CD01162A515C
110400193E50BE2802CF122A515C11F0
FC7323722100002258FEC9FE20303BFE
063835FE18303111FDFC6F260029195E
2356EBE9D0FD2DFD"
1010 DATA 8782,"96FDA4FDB2FDC2FD
2DFD8FFD2DFD2DFD09FE09FE09FE09FE
09FEECFD1FFE1FFE3E3FFDCB57462036
FEA53805D6A5C3100CFE803806FE9030
023E20325EFE2A58"
1020 DATA 8841,"FE225CFECD5FFE2A
58FE7DC6086F300A7CC60867FEB03802
CF042258FEC9F53E20325EFE2A5AFE22
5CFEFB76CD5FFE2A58FE225CFEF1325E
FECD5FFEFDCB5786"
1030 DATA 6939,"18C52A58FE2E0018
C72A58FE7DA720013C3D6F2258FEC92A
58FE7D3C20023EFF6F2258FEC92A58FE
7C3CFEB038023EAF672258FEC92A58FE
7CA720013C3D6722"
1040 DATA 8446,"58FEC92A58FE7D3C
200C7CC60867FEB03E003802CF046FE6
7F20EB2258FEC911F2FDC3800A11F0FC
CD800AFDCB5786A7C8FDCB57C62A58FE
225AFEC91112FE32"
1050 DATA 6218,"0E5CC3800A11F0FC
CD800A573A0E5CC311221128FE320E5C
C3800A1131FE320F5CC3800A11F0FCCD
800A4F3A0E5CFE16280A3A59FE473A0F
5C4F1803FD46D578"
1060 DATA 1546,"FEB03802CF04ED43
58FEC900000000"
```

LAST MONTH I presented a high resolution printing program. This time I'm going to continue (why not?) by listing an addition to the old routine which improves it so that it can be used directly with PRINT statements — in stark contrast to having to use unwieldy pokes and machine code USR calls.

The augmentation to the original program will also give it same some new features, such as actually being able to define the colour the output is printed in, a routine to help make the flicker eminent in the first version a thing of the past and to allow you to Hi-Res print whole strings of characters in one fell swoop.

As with the last program, this also is written in machine code. If, like the majority of the computerised population, you've got an instinctive fear of MC, then don't worry; the program comes nicely packaged in a BASIC format — listing 1 for 48K hackers or the second listing for relatively impoverished hackers of the 16K variety. The loader prog also incorporates a checksum routine, which should prevent any crashing machine code or hex hassles.

Before I continue, I feel I should warn you that you'll need to muster a copy of last month's prog from somewhere. If you didn't type it in, or the version you did possess was mislaid/erased/savaged by a mad dog then you'll need to either nick or cadge a copy. Failing that, you'll need last month's mag and some finger power. Once you've sorted that out, you're ready to type in this month's listing. After you have RUN the program (and waited a couple of minutes), you'll get one of two messages; either one instructing you to load the Hi-res printing program from last month and then save or, for the less fortunate, a message informing you that there is an error in a certain DATA statement. If you do get the latter message then I'm afraid that you'll have to find the error in the offending line and correct it before trying your luck at re-running. Once you're successful you can load the code from last month's program with 'LOAD "" "CODE' and then make a couple of copies of the new program

LISTING 2

```
10 REM    Extension to Hi-res
20 REM     Printing  Routine
30 REM   By  Richard Taylor
40 REM
50 CLEAR 31948
60 LET a=31949
70 FOR l=1 TO 7
80 LET t=0: READ v,a$
90 IF LEN a$/2<>INT (LEN a$/2)
THEN GO TO 200
100 FOR c=1 TO LEN a$ STEP 2
110 LET x=CODE a$(c)-48-7*(a$(c
)>="A")
120 LET y=CODE a$(c+1)-48-7*(a$
(c+1)>="A")
130 POKE a,16*x+y
140 LET t=t+16*x+y
150 LET a=a+1
160 NEXT c
170 IF v<>t THEN GO TO 200
180 NEXT l
190 PRINT "Data OK - Now load P
rinting       Routine & Save": STO
P
200 PRINT "ERROR in line ";990+
l*10
210 STOP
1000 DATA 5427,"3E03CD01162A515C
110400193E50BE2802CF122A515C11F0
7C73237221000022587EC9FE20303BFE
063835FE18303111FD7C6F260029195E
2356EBE9D07D2D7D"
1010 DATA 6606,"967DA47DB27DC27D
2D7D8F7D2D7D2D7D097E097E097E097E
097EEC7D1F7E1F7E3E3FFDCB57462036
FEA53805D6A5C3100CFE803806FE9030
023E20325E7E2A58"
1020 DATA 7177,"7E225C7ECD5F7E2A
587E7DC6086F300A7CC60867FEB03802
CF0422587EC9F53E20325E7E2A5A7E22
5C7EFB76CD5F7E2A587E225C7EF1325E
7ECD5F7EFDCB5786"
1030 DATA 5915,"18C52A587E2E0018
C72A587E7DA720013C3D6F22587EC92A
587E7D3C20023EFF6F22587EC92A587E
7C3CFEB038023EAF6722587EC92A587E
7CA720013C3D6722"
1040 DATA 7422,"587EC92A587E7D3C
200C7CC60867FEB03E003802CF046FE6
7F20EB22587EC911F27DC3800A11F07C
CD800AFDCB5786A7C8FDCB57C62A587E
225A7EC911127E32"
1050 DATA 5578,"0E5CC3800A11F07C
CD800A573A0E5CC3112211287E320E5C
C3800A11317E320F5CC3800A11F07CCD
800A4F3A0E5CFE16280A3A597E473A0F
5C4F1803FD46D578"
1060 DATA 1418,"FEB03802CF04ED43
587EC900000000"
```

with:-

SAVE "HRES PRNT2"CODE 64717,651 (for 48K hackers)

SAVE "HRES PRNT2"CODE 31949,651 (for 16K hackers)

Remember to VERIFY — it's not hard to forget to connect the MIC lead up when you save and end up with a blank tape.

Now for a description of your new program. First of all, you'll need to start any program you write utilising the routine with a RANDOMIZE USR 64717 for 48K owners or RANDOMIZE USR 31949 for 16K owners. You'll no doubt be pleased to know that this is the only machine code call you'll need as the rest can be controlled with the more friendly PRINT statement. After using this call you won't be able to use a ZX printer, if you're lucky (sic) enough to have one, since any output that is usually directed to the printer, using LPRINT or LLIST, is diverted to the hi-res print routine. After that, you can output to the Hi-res routine with a PRINT #3; command followed by . . . what you want.

The syntax of the new style PRINT statement is much the same as a normal one except, of course, everything is done in Hi-res. As usual, you can use the normal colour directives to change colours but, although the program will accept it, the INVERSE directive has no effect. You can use OVER, but its function is somewhat different to normal. AT and TAB will work but they need to be supplied with Hi-res co-ordinates to work on i.e. the range for row numbers is 0 to 175 and 0 to 255 for column numbers. What you print is defined in the usual way, either as strings or as numbers. There's no restrictions on doing maths or doing a bit of string slicing in the statements; you can even put something like 1/COS (SQR ((x–2*3))) if you're mathematically minded.

A simple example. The program below will move an "O" from the left to the right hand side of the screen. With this, and any other programs, 16K hackers will have to change any occurrence of USR 64717 to USR 31949.

```
10 RANDOMIZE USR 64717
20 FOR a=0 TO 248
30 PRINT #3; AT 100,a;"O"
40 NEXT a
```

Listing 3 is in a high-res version of the bouncing ball program.

When you print strings of characters, each successive character is printed 8 pixels to the right of the previous one, taking a new line if necessary, as in normal PRINT statements.

Unlike normal print statements, however, the Hi-res ones won't ask you if you want to scroll when the printing reaches the bottom of the screen, they just stop with a "5 Out of Screen" error report. The use of printing strings of characters is illustrated below, with a short example which moves the word 'SPECTRUM' across the screen:-

```
10 RANDOMIZE USR 64717
20 FOR a=0 TO 192
30 PRINT #3; INK RND*7; AT
    99,a; "SPECTRUM"
40 NEXT a
```

The operation of OVER in Hi-res is somewhat different to its normal operation. OVER is used to implement the anti-flicker device the program possesses. What the anti-flicker routine does is simply allow you to overprint a redundant character with a space and move it to a new position a redundant character with a space and move it to a new position in one command. However, it is assured that you'll never see the character inthe intermediary stage of being overprinted but not re-printed (the cause of flicker). What you do is, in the PRINT #3 statement, put AT (where the space is to be printed — i.e. the character's old position); OVER 1; AT (the new position); "(the character you want to print)". An example would be PRINT #3; AT oldy, oldx; OVER 1; AT y,x;"O". This technique is used in listing 3 at line 40.

LISTING 3

```
10 RANDOMIZE USR 64717
20 LET x=128: LET y=88: LET
oldx=x: LET oldy=y
30 LET a=2: LET b=-2
40 PRINT #3;AT oldy,oldx; OVER
1;AT y,x;"O"
50 LET oldx=x: LET oldy=y
60 LET x=x+a: IF x>248 OR x<0
THEN LET a=-a: GO TO 60
70 LET y=y+b: IF y>167 OR y<0
THEN LET b=-b: GO TO 70
80 GO TO 40
```

No. 5: EASTERN FRONT, 1941 (Atari)

EASTWARD HO!

Operation Barbarossa, 1941, was the code-name for the German invasion of Soviet Russia. The invasion itself came badly unstuck, millions of lives were lost and untold damage caused. The only good result was one of the best ROM computer games ever made. JOHN CONQUEST appraises . . .



NOW THIS is what I call a real computer game, one that uses the Atari as a thinking machine not just a big fast storage bin for jumped-up video games. You play the Germans, the Atari (any model) plays the Russians and, as your team were the real-time losers, it takes mucho brain strain to reverse the result of the german invasion of Russia. Even if ther was a loony at head office, the Hums had some very bright boys on the job — you have to do better than they did.

Open the £19.95 box and you get a ROM cartridge, a very useful operational map of the game area — Poland to the Urals, Finland to the Caucasus — and possibly the worst instructions ever.

MAP

Plug in the cartridge and a joy stick, switch on and you get a small portion (about 1/12th) of the map on screen which you scroll round to get the other installments. There are 1840 'squares' on the map but most of the action will be in the western half. Take a long hard look at that patch of dark green Vs in the left middle. That's the dreaded Pripet Marshes and they are very bad news.

Select offers you Learner, Beginner, Intermediate, Advanced, Expert 1941 and Expert 1942. With Learner you get a single Panzer corps while Uncle Joe had a milita army standing pat on Moscow. The 'object' is to take Moscow but the real idea is to run the unit through the various kinds of terrain to see what happens. (It slows down drastically when it hits marshes, forests and rivers, that's what happens.) so the first lesson you learn is to keep 'em in the open.

Place the cursor on any unit, fire, and its name and current status will appear at the bottom of the screen. Status is in two parts, muster and combat strengths. The latter is the business end but at advanced levels you have to keep a sharp eye on the balance in case panic sets in. While firing, a Maltakreuz (Maltese cross) appears over German units; move the stick in the direction you want the squareheads to go and the cross moves accordingly. You can enter up to eight orders at a time, changing direction as often as you like, and little green arrows flash along the route with the cross at the terminus.

Panzers moving unchallenged across open country can, in practice, only manage seven orders a turn and that kind of breakout stuff comes much later, after you cross the Dnieper, so what with terrain effect and the commies the chances of all your orders being carried out are pretty remote.

When you've run out of ideas, get the vital sector on screen, press Start and the computer will execute as much and as many of your orders as it thinks reasonable. At the same time it'll move the Russians, usually to the same places, curse it. Anything to mess you about. All this happens to the sound of muted heavy guns.

Beginner gives you 17 Germans while the computer, no fool, gives itself 32 Russians. The sole object of this limited (northern sector only) exercise is to take Moscow. At all levels a turn is a week and Learner, Beginner and Intermediate run from June 22 to September 28 1941. Beginner is best used to practice co-ordination. It's essential not to create traffic jams, blocking units in behind each other, especially Panzers which need plenty of elbow room.

This is where you learn about the Pripet Marshes. Try sending units through them and see where it gets you. Even at this level there are inevitable, savage and crucial battles round Minsk, Kiev and Smolensk.

On to Intermediate and you now have to take Moscow, Lenigrad and Stalingrad with 30 crops, the godless Reds fielding 66 armies. The front Stretches from top to bottom of the map and it's a lot more work. Even so it's not really difficult yet and solid methodical slugging should see you right.

Advanced is something else again. You have 42 corps, with reinforcements trickling in through Poland, Rumania and Hungary, a flashing asterisk indicating availability, plus two Finns waiting for you to take Lenigrad. But the Russians have 96 armies and their two best generals, Autumn and Winter, the guys who saw off Napoleon when he tried this game. Mud sets in on October 5 and everything freezes over, the screen going a ghastly white, on November 2, only easing up slightly just before the end of the game, March 29 1942. To add to the fun you also have to get to Gorky, Kuibishev, Kazan and Krasnodar, way out east.

Expert 1941 also runs from June 1941 to March 1942, with 47 Fritzes 1941 also runs from June 1941 to March 1942, with 47 Fritzes facing up to 119 Ivans, and there are three new wrinkles: a massive negative starting score, four useful but delicate Fliegerkorps and you have to put units into specific modes. The Fliegerkorps are Stuka units whose strength can be added to attacks, but their bases have to be kept near the front but well away from any Russians. The modes are standard (do anything), assault, forced march and entrenchment, all of which have pros and cons.

Expert 1942 is identical except that the campaign runs from May 1942 to March 1943, with appropriate set-up. I must admit that I don't know whether these levels are actually winnable — Heinz Guderian I ain't — but the Save routine is vital. You gotta sleep sometime!

It always pays to combine forward planning with simple opportunitism. As you can only see part of the battlefield at a time, it's useful to think of the units in a given area as a Group and have some idea of what each Group is trying to do. Exploit gaps, sure, but don't get carried away or the Panzers will be cut off and massacred.

The best way to wipe Bolshy units out is to bracket them between your own and this trick can be pulled off on quite a large scale if your Panzers are doing their job. Of course the Russians can, and do, play this game as well.

Eastern Front is the work of designer Chris Crawford who also did the conceptually excellent but functionally rather primitive *Legionnaire* (Avalon Hill). A great strength of his designs is that apart from using the space bat to cancel orders and the Start button to execute them, they're completely joystick operated which makes them far more playable than, for instance, Strategic Simulations' horrendously complex all-keyboard *Battle for Normandy*.

Like all the present generation of wargames, *Eastern Front (1941)* is very obviously based on a board game, avalon Hill's classic *Stlingrad*. But as a computer game it's in a class of its own, the state of the art of electonic kriegspiels.

INTERACTIVE BREAKTHROUGH-OR LOGISTIC PAIN?

RICHARD BURTON checks out *Empires*.

LET ME tell you, this Galactic Domination lark is real hard graft. There are fleets to build and dispatch, mining operations to set up, battles to be fought and alliances to be formed. If that wasn't enough there's the constant threat of that awesome pangalactic entity known as the Post Office to contend with. Heavy stuff.

You're confused? I can dig it. But what we have here is one of the more unusual offerings in the field of computer games — Imperial Software's *Empires*. More than a game really, since Imperial refer to it as a "... Fully interactive strategy game". Interactive it certainly is with room for up to six people (plus one umpire) to play — none of whom need ever meet any of the others. Such a unique, untypical games situation comes about by each player only having his or her own part of the game to contend with and communicating with the others through the umpire.

Let me explain. The basic *Empires* kit comes in a cardboard box looking not unlike a traditional board game. Only a flash containing the words "For 48K Spectrum" gives away the true nature of the game. Inside a styrofoam tray contains four program cassettes, 3 for the players and one for the umpire, individual player rulebooks plus a larger Umpire's manual, four cardboard Galactic Maps and a large wodge of small record cards to keep track of individual movements once the game really gets into its stride. An Expansion Kit (the first of several that are promised) contains 3 more cassettes to bring the player roster up to six plus fresh supplies of Galactic Maps, record cards, etc.

When you're a long way from home you can never have too many Galactic Maps.

Once the basic kit has been acquired three aspiring, power-hungry tyrants, each with access to a 48K Spectrum, are chosen at random and supplied with one of the player cassettes plus rulebook and all the trimmings. A fourth individual, who knows where the true power lies, takes the umpire's cassette and rulebook and all four depart to their corners (homes?) to prepare to intergalactic conflict.

NUMBERS

Depending on numbers players find themselves as either a human of the Federation of Earth, a reptillian Warlord of Tyr or a mechanical Robozon of Tyr. Each has a home star system, a population to protect and a budget. However, regardless of race, creed or date of manufacture, the subsequent gameplay is the same.

First the program is loaded and a name and security code chosen which will stay with the player throughout the game. The Main File gives three main options: Military, Strategic and Mining.

Military is to do with building ships (battlecruisers and scout ships) and assigning officers to them from a roster supplied.

Strategic Command handles all military and civilian movement. Solar systems can be scanned for information before committing forces to them. The on-screen map matches the card Galactic Maps supplied with the game so that constant checks on deployment of forces can be kept.

Once all the data has been fed in the player's first move is complete. The data is SAVEd onto a blank cassette and given (sent?) to the umpire. Depending on how widely scattered the players are, this is where the awesome cosmic power of the Post Office could come in, by sending important data into the nearest black hole. A serious flaw in the system, we think.

Assuming that all the players' moves arrive safely and before interest flags the umpire, using his own special program, evaluates the total situation. He has the power to resolve the outcome of battles, communicate with players individually, even (sneaky devil) send false data or garbled messages.

Once battles have been decided, claims staked, etc., the updated blanks are returned to the players ready to begin the second move.

As the game progresses alliances can be formed between players, secret messages exchanged, etc. Be warned that *Empires* could go on for a very long time — games of months in duration are not expected to be uncommon.

The objective is simply to trash every other race in the universe and become the Supreme Ruler. There are only three ways to lose: If a player's population drops below a danger point (not very likely); total bankruptcy; or an enemy race destroying a home planet's defences (most likely).

Without doubt Imperial Software have an extremely impressive product in *Empires*. It's state-of-the-art in computer strategy games. Their approach is thoroughly professional. Screen graphics are very good with fast, menu-driven commands. *Empires* is complex and stimulating enough to keep a player's attention for a long time (it will need to) and has the potential for expansion (already started). But — it has to be said — who will buy it?





ALL PRESENT AND CORRECT

...Snaps BERNARD TURNER, dashing of a crisp salute as he sums up his epic 3-porter on the 68000 Wonder Chip

How Hardware Influences programming

THE MOTOROLA 68000 chip on its own, unattached to anything, would be as much use as a dog's dinner. To make it useful you have to attach memory (normally in the form of RAM, ROM and EPROMs) and I/O devices (often known as 'Ports').

The chip is connected to these by what is commonly known as a 'Bus', in actual fact by three distinct busses, 'Control', 'Data' and 'Address'.

The function of Address Bus is to select the correct 'slot' or location. The function of the Data Bus is to carry data form/to the selected (by the address bus) location. Finally the Control Bus governs and monitors the state of the micro hardware, especially the interaction between memory and the 68000.

Each Bus is a collection of electrical lines. Generally speaking these lines can be on or off (i.e., set or clear), thus conveying binary information. In the case of the Data Bus these number 16 and are numbered from 0 to 15. The Address Bus has 23 lines and they are numbered 1 to 23. The Control Bus has many different functions to perform in its role and each are individually named such as 'DTACK' and 'UDS'.

Those of you who know about address lines may be asking 'what has happened to Address line zero?' — where the hardware starts to affect the software. When there isn't a zero address line then a processor cannot select odd numbered addresses (binary remember) because it cannot switch on or off a non-existent line. This therefore induces the processor to think of the memory as occurring on even boundaries. Because of this, if you try and access odd memory via an Address Register or the Program Counter then an error will occur. This error is called an Address Exception.

There are only 23 Address lines emanating from the 68000 and 68010; the top eight bits of the Program Counter and Address Registers are thus superfluous, and presumably are there only for upward compatibility with future Motorola 68000 based products. Just to confuse matters the 68008 chip (as used in the Sinclair QL) only has 20 Address lines, numbered 0 to 19, available from the chip itself. This means that only one(!) megabyte of memory is directly addressable if you are using the 68008 variety. Sharp-eyed readers among you may notice that there is an A0 address line; this is because the 68008 reads its data in one-byte chunks (there are only 8 Data Bus lines). It still maintains compatibility with the 68000 by forcing you to use even address boundaries.

68000 Architecture

THE MOTOROLA 68000 contains the Data Registers D0 to D7, Address Registers A0 to A7, a program counter and a status register.

Data Registers

Data Registers are general purpose registers. They can operate on byte, word and long word sized data. They can be used as indexes in PC and Address Register Indirect addressing modes. Unfortunately they cannot directly point to memory locations.

Program Counter

In the 68000 the Program Counter is a 32-bits wide Register. It functions as a pointer to a memory address where the next instruction to be executed is contained. Each time the 68000 wants to start a new instruction it consults the Program Counter (PC) as to from where in memory it should fetch the new instruction.

Status Register

The Status Register reflects and influences the MPU as it is processing. It is only 16 bits in size and is distinctly separable between its top and bottom 8 bits. The top byte is known as the System Byte. The bottom byte is known as the User Byte or Condition Code Register.

The Status Register Format

Bit	Flag	
0	Carry	(C)
1	Overflow	(V)
2	Zero	(Z)
3	Negative	(N)
4	Extend	(X)
5-7	Unused	
8	Interrupt mask 0	
9	Interrupt mask 1	
10	Interrupt mask 2	
11	Unused	
12	Unused	
13	Supervisor	(S)
14	Unused	
15	Trace	(T)

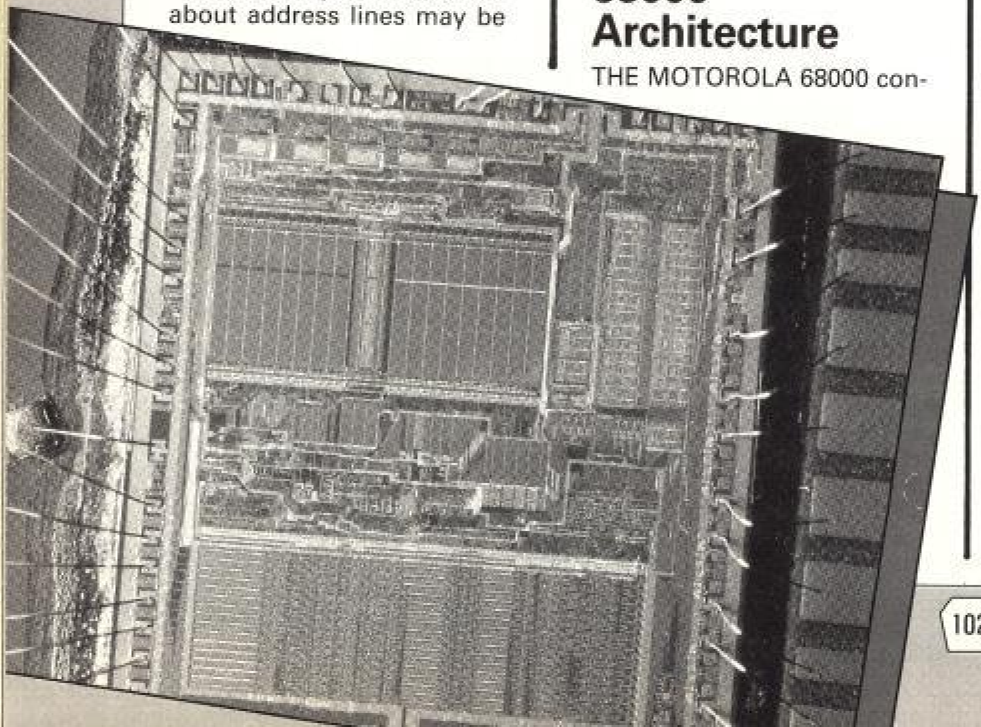
Supervisor Mode

The Bits can be either Set or Clear. The Status Register can be modified. What can be modified depends on the register itself — to be specific, it depends on the Supervisor Flag. If it is set then the 68000 is in Supervisor Mode of processing, otherwise User mode.

The difference between these two modes is mainly one of privilege. In Supervisor Mode you are allowed to execute any legal instruction. In User Mode there are a few instructions you cannot execute, these being mainly instructions that would allow you to enter Supervisor Mode! If not in Supervisor Mode then it should only be possible to enter it by an Exception or by a 'entrance' made available to you by the person who programmed the Supervisor Mode portion.

Trace Mode

The most valuable bonus of Supervisor Mode is its ability to single-step through each instruction. 'Single-stepping' is the execution of a single instruction, then normally a jump to a monitor routine, which allows you to examine and modify processor registers. You can then execute the next instruction and so on. Single-stepping is initiated by setting the Trace Bit (T) to one.



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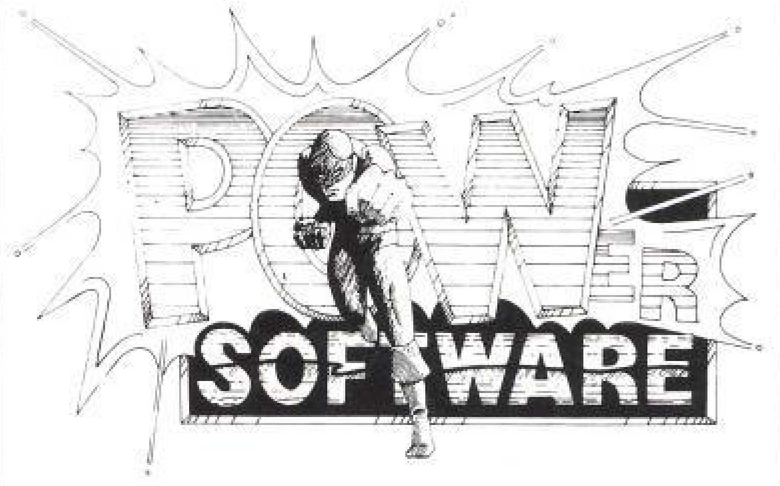
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Letters to BIG K

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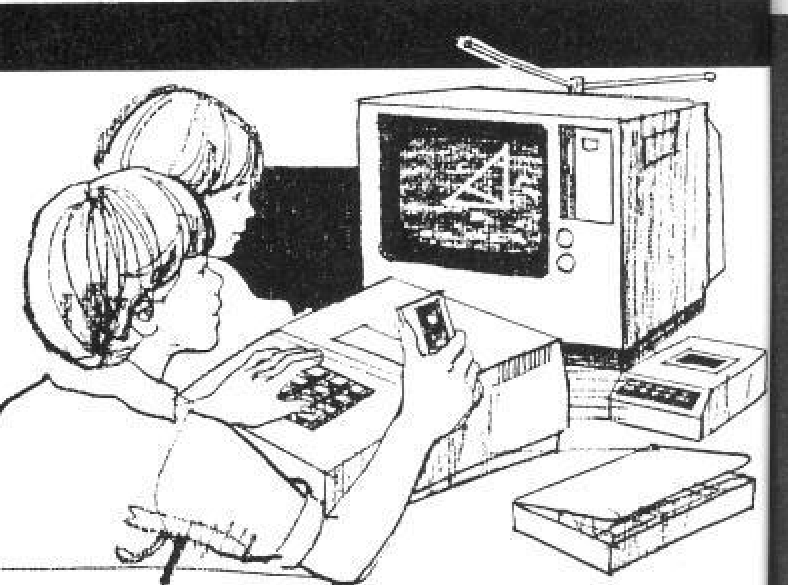
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THIS MONTH'S ALL-PURPOSE BIG HELLO TO . . .

Alan Odiam, David Jones, Ian Raine, Arthur Moore, Shirley Wills; and Thor Franksson and Gudjon Runarsson from Iceland.

Map Plotters Foiled

My friend and I have completed a map of Ultimate's *Sabre Wulf*. If you would like a copy of the map, which has 256 locations, please send your offer. We have sent copies of this letter to other magazines, so the highest offer gets the only copy.
ALAN PARKER,
Brighton, Sussex.
● We already have one (see page 15). Better luck next time.



CATCH 22

The Shadow asked about the real state of computers in schools (issue #2). At Stowmarket High School we have 10 480Zs connected to a 380Z, crammed into a tiny ex-needlework room. These are supposed to fulfil the needs of over 1,000 of us. And as for the state of 'computer awareness' (let alone the prospect of 'O' levels) all we've got is 30 kids playing games.

In desperation, I wrote to my LEA. They replied: "Computers are advancing so rapidly that there is little point in trying to teach the subject to children, as it will be different in a week." Fair enough. But in the 'O' level Computer Studies syllabus, it says you must know all about binary, hex and data encoding etc. So here I am stuck in catch 22. Isn't the British Education system wonderful?
ADRIAN HUNT,
Badley, Suffolk.
● No.

HOW MANY?

Just one groan about Big K magazine — the amazing array of advertisements that seem to have literally taken it over. Did you know there were 41 in issue #4?
CHRISTOPHER SIMPSON,
Northants.
● No kidding? There were supposed to be 43. (Heads will roll . . .).

HOW MUCH?

I bought a Prism VTX 5000 modem and logged onto Prestel and Micronet. There's lots of info, free games and top games at bargain prices. Great! but then I discovered the cost.

There's about £100 to start with, then a subscription fee of £14 every 12 weeks. PLUS the telephone bill. So if you're thinking of doing the same — remember you'll need MONEY.
DOUGLAS SPENSE,
Stockport.

TOWING THE LINE

HERE ARE my suggestions (Big K Issue #2) for suitable network names for political parties . . .
SDP/Alliance — TOGETHER-NETS/WETNET
Shirley Williams — HAIRNET
The Liberal Party — DRAG-NET
National Front — SKINNET
Conservatives — COB-WEB/BANNET/OBSTINET
Scottish Nationalist Party — LOCH-NETS
Communist Party — RED-NET/DOMINET/BREZHNET/NIET
IAN WESTION,
Whetstone.
● Thank you, Ian. That's five pounds net profit.

1985 Champ?

Do you think MSX will have a big impact in Britain?

With Sinclair now concentrating on QL, will this knock the Spectrum down to a relative ZX80 level by comparison?
DAVID THOMPSON,
Leeds.
● Yes. No.

KEYBOARD SKILLS
No 4:



THE OVERHEAD HANG

BURN BABY BURN!

I want to know if any BBC freaks out there have managed to kill the dragon in Bug-Byte's *Twin Kingdom Valley*. Whatever I do, I get frazzled by his fiery breath. I want to kill him because of the master key he posseses.

ALUN PHILLIPS,
Merseyside.

● Beebed-up Dorkslayers please assist. Meanwhile, here are some *Jet Set Willy* aficionados athirst to spill a bean or two . . .

JSW Tip 1

TO GET the objects from the Conservatory roof, MERGE the first part of the program, then CLEAR 32767: LOAD " " CODE. When this is loaded type in POKE 60231,0: POKE 42183,11: POKE 56876,4. The new version can be saved by SAVE "Jetset" line 10 *SAVE "JSW" CODE 32768,32768* GO TO 40. As there was a code in *Manic Miner*, there is also one in *Jet Set Willy*. Go to the first landing and enter WRITETYPER and enter combinations of numbers to travel between rooms.

DAVID MAHON,
SWINTON, S. YORKS.

JSW Tip 2

FOR ENDLESS lives, follow thusly:

Type MERGE ". Stop the tape when 0 OK, 0:1.Type II (so as to clear this line). Type in this line: 35 POKE 35899,0. Now start the tape again.

To disable the ATTIC and BANYAN TREE bugs (This enables you to get to the right hand side of the Banyan Tree) follow these instructions:

Merge the program as above. Now type CLEAR 32767. Type LOAD " " CODE. Start the tape again and let the program load. Once loaded enter: POKE 60231,0: POKE 42183,11: POKE 59901,82 :POKE 56876,4. To play, enter "GO TO 40".

BILLY ARMSTRONG,
Sligo, N. Ireland.

● And now some *Football Manager* freaks . . .

ZIT DANDRUFF — J'ACCUSE

So Zit Dandruff knocks the Spectrum, eh? (Issue #4). He really has no right to call himself a Computer Snob. Unless the word Snob has changed its meaning from "One who looks down on those he considers his inferiors" to "One who is a wally". Colour and sound? The BBC can only rustle up eight colours. And as for that pimple of a speaker! Three sound and one noise channel, with a feeble eight bit control! It's just not good enough.

But then he just has to look at the beast to know that he's buying the Cortina of the computing world. What a disaster!

If Zit Dandruff immediately purchases an Atari, he may yet be able to hold up his head at the golf club. Okay? Yah!

Incidentally, the Atari book you should have recommended to A.C. Lowe (issue #4) is 'Your Atari Computer' by Ian Poole (published by McGraw-Hill). This book is neither boring nor O.T.T. It covers both elementary and advanced Atari Basic, as well as most of the pre-XL hardware.

CHRIS BONE,
Watford.

● Er . . . and which machine do *you* like, Chr$?

Slug Slams Pirate Myth



Come off it! The software houses aren't starving yet. And don't give us the rubbish about piracy losing the industry x zillion quid last year. You know as well as I do that these figures are totally spurious, based on the assumption that everyone with a pirated copy (where does this "seven pirate tapes for every one legit" come from?) would have bought a copy of the real program. What nonsense — apart from the fact that the dross, and most of the punters (i.e. the kids) are on fixed incomes, either pocket money, weekend earnings (or like myself — the dole) and could not possibly afford anymore than they buy already.

This letter will probably be treated with a snide aside underneath the missive — but don't forget, we've sussed you.

THE WERESLUG,
Gastropodsville.

● Forget all that — tell us how you came to be called 'Wereslug'.

● And now some *Football Manager* freaks . . .

SCORE . . .

IF YOU press a key during the match highlights at the end of a particular move, the screen will change immediately and you'll get another chance to score.

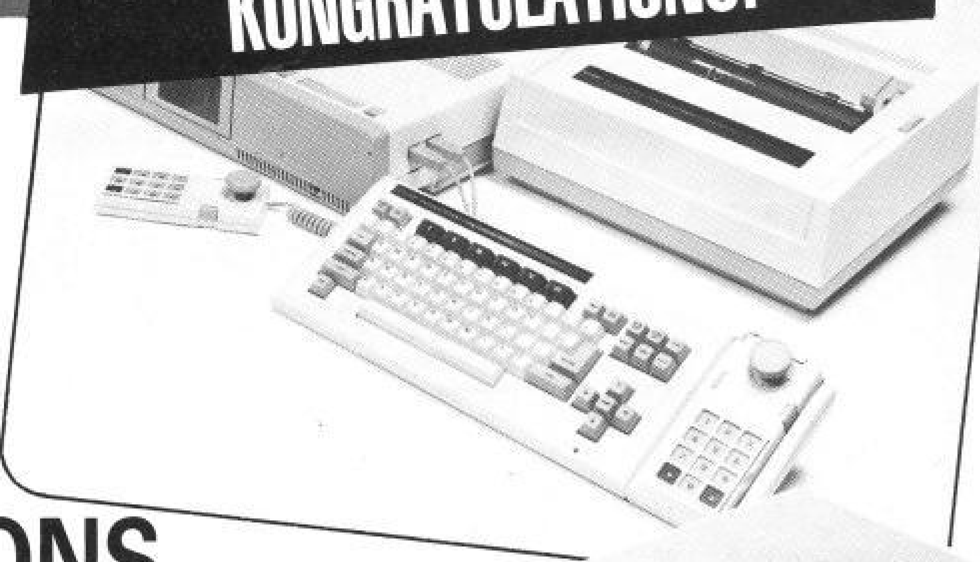
MATTHEW WARE,
Norwich, Norfolk.

. . . THEN SELL YOUR TEAM!

If you want to load your chances in *Football Manager*, and don't mind a long game, sell all your team and make a lot of money. It's possible to play on and make more money. Then you can buy back your players and play on — rich!

CHRISTOPHER LUNN,
Huntingdon, Cambridge.

KONGRATULATIONS!



BIG K AND NOW HERE ARE THE WINNERS OF OUR COMPETITIONS

The results are in! BIG K's first two Big Kompetitions have been judged to be a great success, especially by a lucky few who have kopped some ace prizes. Read on, Macduff…



BIG K Coleco competition

April issue. Eight features of the Coleco Module 3 computer (Adam, to you) were listed and entrants asked to place them in order of appeal to the average home user. The judges checked out the coupons and decided that the best order submitted came from *Gary Adams of Farnworth,* who put:
1–B, 2–E, 3–L, 4–A, 5–J, 6–C, 7–K, 8–D.

Gary wins the Module 3 plus a ColecoVision video game system to plug it into. The same goes for *Geoffrey Loveman of Southampton,* who submitted the next best attempt.

Michael Hogburn of Reading carried off the second prize of a ColecoVision video game system plus Module 1 Atari

BIG K Atari competition

May issue. An Atari 800XL plus 1050 disc drive was the prize awaiting a winner in this competition. Ten questions with multiple choice answers were given. The best set of answers, in the judges' opinion, came from *Don Murray of London.* He put:
1–A, 2–C, 3–B, 4–A, 5–A, 6–A, 7–A, 8–B, 9–B, 10–A.

Don wins the 800XL and disc drive while 10 runners-up each receive prizes of AtariSoft games to run on most of the popular micros. All shoud by now have been notified of their winnings.

Big Kongratulations to one and all.

More results koming soon (doncha just love all these 'K' jokes?).

GULPO!

Back by almost no demand (especially from the BIG K staff) the Department of Unintentional Blunders rides again.

Reviews (Big K No.4, p.27). In the review of Anirog's *Cybotron* it was stated that the player was only able to fire in the direction of travel. This is not strictly true as two joysticks can be used in this game, the second giving fire in eight different directions. Nostra culpa, Anirog.

Hunt the prog (Big K No.3). Apologies to call CBM 64 owners who looked in vain for the prog mentioned on our June issue's cover. Fact is we found an evil bug lurking in that program and had to pull it out (the prog, not the bug) at the very last minute. Problem was that issue's cover had already gone to press some time before (as most covers do) leaving us helpless and red-faced. Well, it shows that we care about the listings we give you.

Commodore owners, We love hearing from you, really. But we wish it was for reasons other than problems with those pesky Commodore graphics character sets. It's finally dawned on us that what we all need is a totally inklusive, kompletely komprehensive BIG Katalog of Kommodore, sorry, Commodore, Graphics.

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Yet games have become increasingly sophisticated. Scenarios are more varied, levels of play have been increased, and high resolution colour graphics capabilities are being used together with dramatically improved sound effects. The trick is to know which games are as good on screen as they are on the pack.

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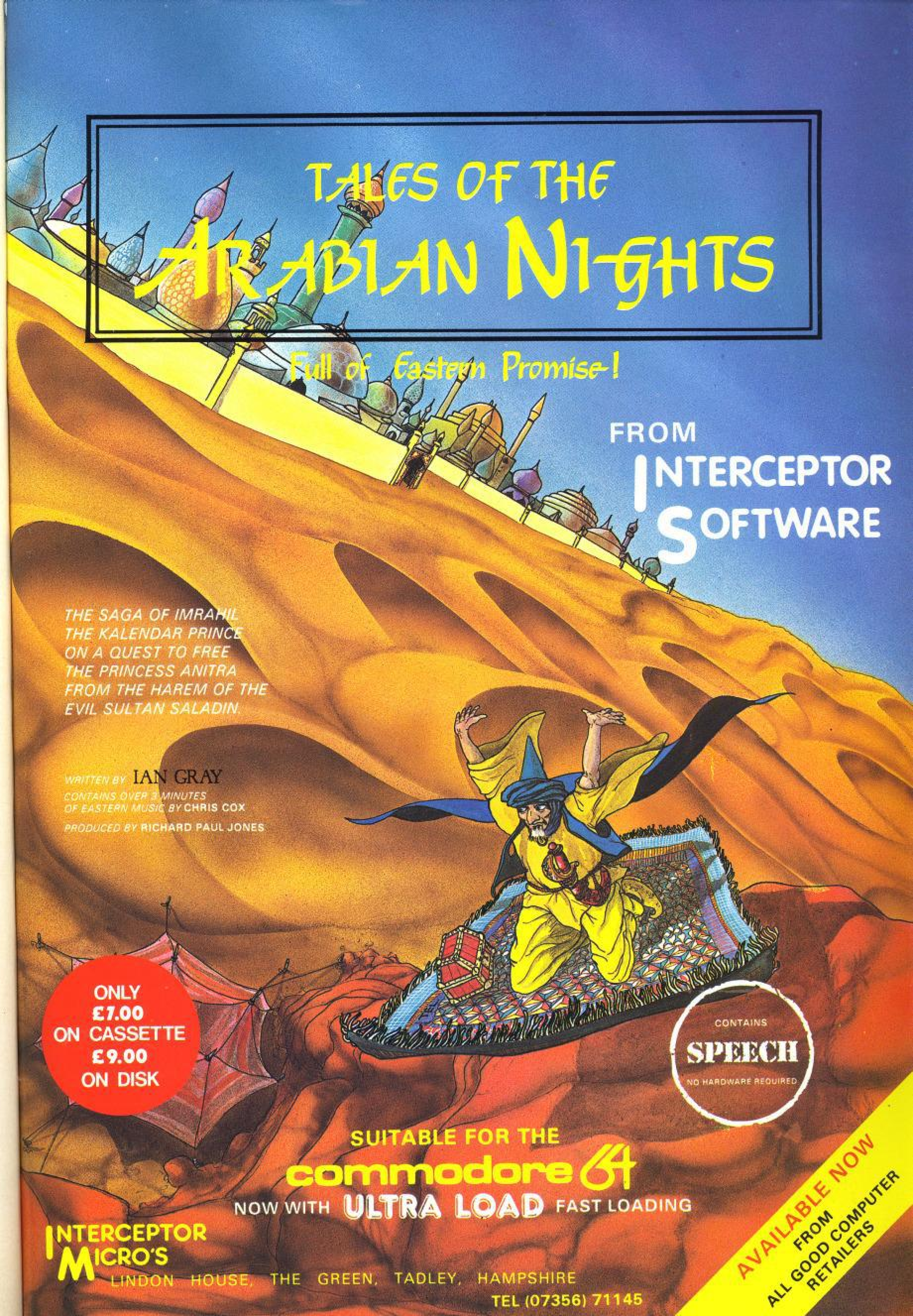
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